THE NATURE OF DIVIDENDS

PREINREICH

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THE NATURE OF DIVIDENDS

BY

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PREFACE

The distribution of corporate wealth and the extent to which its various forms may be considered income to the investor occupies a prominent position among the moot questions of corporate finance, which do not appear to have received their share of attention up to the present. To a considerable extent, the literature on the subject is limited to general remarks in standard textbooks and to magazine articles written by economists, financiers and accountants, many of whom base their conclusions on the *Eisner v. Macomber* decision.

It is the purpose of this book to approach the subject with an open mind, having regard to economic rather than legal theories and develop a framework of general principles which may then be subjected to tests in the light of other opinions.

As a starting point, it is necessary to recognize that a corporation and a partnership represent but different stages of development in the organization of human enterprise. Despite the legal doctrine of the separate corporate entity the earnings of corporations and partnerships do not differ in their essential effect of increasing the wealth of the participants in an enterprise, whether they be called partners or stockholders. The wealth of most corporations and partnerships is measured from time to time in accordance with a collection of principles known as the accrual method. The result obtained in each instance is the owners' investment in the assets measured and it seems illogical to accept the measurement in the case of partners and to reject it as far as stockholders are concerned. Apparently, therefore, the beacon which will guide the investor through the dense growth of technicalities must be the accrual method of accounting for investment in corporate assets.

Granting that it is impossible to follow a beacon straight through a thicket, it is necessary to keep in mind that deviations from the straight line are resorted to for the purpose of expediency only and that the more or less devious paths adopted are not ends in themselves, but merely the means of reducing resistance to

travel. The longest path requiring the least effort is the cash method, perfectly suitable for those who are in no hurry to arrive. With the development of investing as a business to be carried on with other people's money, this method becomes obsolete, because it tends to lag too far behind accomplished facts and does not enable the entrepreneur to pay distributions commensurate with earnings. Whereas under the cash method income-realization becomes synonymous with the receipt of cash, it must be recognized that one approaches the truth by admitting that income consists not only of money, but also of money's worth. This, in turn, leads to the question of what constitutes money's worth? For practical considerations, accounting theory still clings to the notion that income-realization by the stockholder is dependent upon certain corporate actions other than operations. The result of these actions is invariably a reduction of the wealth represented by the stock just before that action and the transfer of the difference to a new evidence or symbol of wealth such as a cheque, or a stock certificate.

What kinds of corporate action shall be considered as resulting in the realization of income is a matter of personal preference to the same extent as that of choosing a path through the thicket, but it is difficult to find fault with those who insist upon choosing the most logical method, namely that of inquiring into the possibility of income-realization in *every instance,* when corporate action results in the decrease of the equity represented by the stock held immediately prior to the action and the transfer of that portion of the equity unto a new symbol, albeit it be merely a new stock certificate or a subscription right.

In all cases, the measure of income-realization is given by that portion of the book equity transferred to the new symbol, which accrued since acquisition of the old symbol and was, therefore, never recorded by the investor. This method still falls considerably short of picturing the true state of affairs, but it represents the highest development of all theories based upon the convenient fallacy that corporate action is a prerequisite of realization and thus lends itself more readily to the logical development of all its details than any of the other hybrid methods in use.

The next step forward will be that of discarding the concept that distributions are indispensable vehicles of income-realization.

It will then be possible to base the computation of income from investments in corporate assets upon the gradual increase in the book value of the investor's holdings. This will place stockholders and partners on an equal footing. There are no serious obstacles to the adoption of the accrual method in this manner. All that would be necessary is to inculcate a greater respect for the stockholder into corporate accounting departments to ensure the prompt computation and publication of the approximate book value per share on all dividend dates and closing dates. Further standardization of accounting practices would be a desirable corollary.

But even the accrual method can measure changes in the investor's wealth only to the extent that it is invested in book values, whereas it is well known that the purchase of a share is a transaction based upon exchange values. Accounting theory recognizes exchange values only when they can be expressed in terms of cost, *i.e.* in terms of a closed transaction. This leads to a belief, widely accepted among accountants, that the legitimate limit of the annual increase in any stockholder's wealth is given by the amount which the company earned on his fraction of the total capital. If an investor who bought at the beginning and sold at the end of the year, realizes a higher increase in his wealth, he is said to have benefited from a mere market fluctuation which, in the long run, offers an equal chance for the opposite result.

Actually, exchange values do not remain constant at the level of original cost, but follow a definite economic law which may be stated briefly by saying that any investment can be bought or sold for the total present value of all future service expected from it. As long as the stockholder remains passive, these services take the form of an annuity of dividend payments depending ultimately on the company's earning power and its ability to expand, *i.e.* to reinvest and compound those earnings. Through differences in opportunities for reinvestment the earnings of some corporations show an increasing tendency, while those of others remain constant or may even decrease. The stockholders of every expanding company will experience an annual increase in their wealth (*i.e.* in the exchange value of their holdings) which is not equal to their share of corporate earnings, but to the present value of all future services to be rendered by the compounded earnings in their new

capacity of additional capital. The presence of cyclical and speculative fluctuations in the stock market should not be allowed to obscure this general rule which defines the trend of an investment, that is the axis around which secondary price movements are, in the long run, evenly distributed. The puzzling problems surrounding stock dividends, which have led to such a wide diversity of opinion as to their real nature, can be readily solved in the light of this rule.

The question of the regulation of corporate accounting procedure with a view to safeguarding the investor against the impairment of his capital through failure to grasp the significance of corporate action ranks next in the order of importance among the subjects discussed. In this respect, it is one of the objects of the book to show that the stockholder who studies the nature of corporate distributions can make himself practically independent of his corporation's dividend policies and cash his income as, if and when he pleases. On the other hand, it is recognized that the subject is a fairly complicated one for the layman and that, therefore, the regulatory activities of stock exchanges and governmental bodies should receive the full support and helpful criticism of every accountant, even though it seems doubtful whether the principle of *caveat emptor* can be prevented from coming occasionally into its own.

In my endeavor to build a unified theory coordinating the different forms of corporate distributions, I had to draw upon a great variety of ideas expressed by accountants, economists and financial writers. The sources, as far as they could be identified, are listed in the bibliography and cited in the footnotes.

Among the faculty members of Columbia University, who have made it possible for me to submit this study in partial fulfilment of the requirements for the degree of doctor of philosophy, I am especially indebted to Professor Roy B. Kester for his detailed review of the general trend of thought, with particular attention to its accounting aspects; to Professor James C. Bonbright for a thorough criticism of the economic and legal concepts used; to Professor Harold Hotelling for valuable suggestions improving the mathematical presentation of the central idea and to Mr. Benjamin Graham for constructive advice relating to stock market practices.

Mr. Herbert C. Freeman, C.P.A., is no less entitled to my

gratitude for his exhaustive comments made principally from the viewpoint of the corporate management. I must also mention Mr. A. P. Richardson, who has devoted much energy to editorial revision. Finally I wish to thank my former assistant, Mr. John P. Bogdan, on whom I have first tried out the ways and means of expressing my thoughts on the nature of dividends.

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CHAPTER I

THE INVESTOR'S CAPITAL

§ 1. Introduction.

An investor is a person in possession of a fund of wealth or purchasing power, from which he wishes to derive future rather than present services or satisfactions. The act of investment consists of the purchase of an instrument of production and the amount paid for it is the invested capital or principal. With temporary exceptions the total capital of the investor will always be composed of an invested and an uninvested portion, and we are wont to say that his capital remains unimpaired if a decrease of one is offset by an increase of the other. A careful distinction between invested capital and total capital available for investment should be drawn to avoid confusion when corporate distributions are examined as to their nature and effect upon the investor's capital.

An important consideration governing the selection of an investment is safety. Among other matters influencing the choice, liquidity of principal and income, rate and regularity of income and tax liability incurred may be mentioned. The relative importance of these factors differs according to the investor's needs and desires. As in most other individual appraisals of economic values, the decision depends upon that highly elusive yardstick, the utility of the last of all infinitesimal increments composing the investor's total wealth. Accordingly investments may be subjected to comprehensive classification: some forms are suitable for trustees and saving banks, others combine the so-called "business man's risk" with a correspondingly higher yield, and still others are described somewhat incongruously as speculative investments.

For present purposes it is sufficient to consider investments in residuary corporate equities, *i.e.* in high-grade listed common stocks of large corporations enjoying a good reputation for stable earning power and integrity of management. With respect to a group so delimited, it is possible to draw certain general conclu-

sions leading to the choice of practical accounting methods and procedure adapted to the needs of the investor.

§ 2. The nature of a share of stock.

Before the measurement of the investor's capital can be undertaken, it is necessary to understand clearly in what it was invested. The time-honored way of looking upon a share of stock is to consider it as a capital good equivalent to, say, a piece of land. If land is acquired the situation is simple: the amount paid for the land is the invested capital and the value of the net product is the income realized on the investment. As a geographical concept the land always remains the same, and a change in its value can arise only from fluctuations in its power to command a sum of money or other commodities in exchange. Such fluctuations might be due either to changes in the purchasing power of money or to a change in the utility of land expressed in the utilities ascribed to other commodities. To speak of its utility is equivalent to saying that its value depends upon the services it could render in the most lucrative of several possible uses rather than upon those which it is actually rendering in its present use. The appreciation of land over a period of time is a familiar phenomenon explained by growth of population, industrial expansion or other factors increasing the demand for the limited space available in certain localities. If the land is sold, the difference between the purchase price and the amount received is called profit on sale or capital gain in terms of money, although a profit or gain is actually realized only to the extent of the difference between the volumes of the necessities or conveniences of life commanded at the respective dates of payment by the money invested and the money returned.

The theory of investment in corporate stock has developed in the same way. The amount paid for the stock is the invested capital, the cash dividends received are income and the positive or negative increment realized upon sale is the capital gain or loss. This theory is not only deeply intrenched in public consciousness, but recurs everywhere in court decisions and in the writings of economists, financiers and accountants.[1]

One may attack this theory of common stock from two sides.

[1] Cf. *Eisner v. Macomber,* March, 1920 (252 U. S. 189), and contemporary publications listed in the bibliography.

First of all, it should be evident, that a stock certificate is not a capital good but merely the symbol of proprietary interest and could be compared to the deed rather than the land. The deed, similarly, is not wealth but merely evidence of its ownership. Negotiability and the safeguards surrounding that legal convenience have made us adopt the habit of speaking of the value of stock, when we do not speak of the value of a deed. What we mean in either instance is the value of the property rights represented by those symbols. Since corporations are permitted to hold common stocks of other corporations, this distinction between a share of stock and a capital good is important. (Cf. § 39. The danger of inflation.)

The second difference concerns the properties represented by a deed and a share of stock respectively. The land is an instrument of production pure and simple, whereas corporate property is a composite of rights to many heterogeneous forms of wealth embracing capital goods as well as consumption goods, instruments of production as well as their product. Some of these are subject to corporate control, others are merely represented by claims or symbols of various kinds. Since a share of stock represents an undivided interest in this conglomerate of assets, a parallel between it and a deed can be drawn only so far as the undivided interest relates to instruments of production. Even then, the sale of each capital asset so included would change the value indirectly imputed to the stock certificate as the transfer of a deed might change the value which, figuratively speaking, lodges in it. Although it must be admitted, therefore, that the appreciation of capital assets has a bearing upon the value of stock, it is evident that another factor is also at work, which does not operate in the case of a simple ownership of land. This factor is the constant interchange of working assets between the corporation and the outside world. The aggregate property symbolized by stock changes in composition every minute. Each individual change taking place in the course of operations is a closed transaction between two unrelated parties, involving not only the separation of an identified item of property from the bulk and its passing beyond corporate control, but also the receipt and substitution therefor of its equivalent in trade, measured and expressed in terms of money. Whenever such an exchange results in a profit or a loss, the elements of separation, realization and measurement

are always present, and it is the function of bookkeeping to make a careful record of them. To liken this process to the appreciation of land, merely because the cumulative designation or symbol of the assets in perpetual mutation is not changed, seems illogical.

§ 3. Measuring invested capital.

So far two forms of increment enhancing the value of the stockholder's investment have been discussed. The first was the appreciation of land or a capital good due to an increase in its power to command other commodities in exchange. A similar change in purchasing power may affect the value of consumption goods, especially the corporate product, if it is stored until the advent of a seller's market. Standard accounting procedure is reluctant to take notice of such increases in value because there is neither separation nor realization. The measurement of capital invested in a given enterprise will, therefore, not include a measurement of appreciation until the time when a closed transaction converts it into realized profit.

The second change in what is termed the value of stock was found to be due to corporate operations, which do involve separation, realization and measurement in every instance. With respect to the appreciation of investment arising from such a source, the applicability of the capital-gain theory based upon the fiction of the separate corporate entity and the criteria of separation and realization is here denied.[2] It will therefore be maintained that one basic item of stockholders' incomes consists of corporate earnings, to the same extent that partners' incomes consist of partnership earnings. (See the concept of income in § 8.)

A third form of capital increment not hitherto discussed is the increase in value due to an increase in services actually rendered. An undivided interest in an efficient combination of various assets is often more valuable than an interest in the present value of each asset taken separately, because the combination, maintained intact, will yield a higher return than its component parts could, if left to themselves. The added value thus accruing to a composite unit of production is well-known under the name of good-will. A careful distinction should be drawn between

[2] For a detailed exposition of this capital gain theory see E. R. A. Seligman: Are Stock Dividends Income? *American Economic Review*, 1919, vol. 9, No. 3.

good-will and the appreciation of specific assets. The value of good-will is dependent upon the continuance of corporate operations, whereas the value of the land in the above example depends upon what might be done with it if its present use were discontinued.

To sum up, it may be said that the value of the investment represented by the stock certificate is subject to three main influences:

1. Closed transactions affecting the volume, identity or ownership of the assets symbolized. (Operations and Distributions.)
2. Fluctuations in the exchange value of assets unchanged in volume and identity. (Appreciation.)
3. Changes in the intangible efficiency value of a composite unit of production arising from changes in the services yielded. (Good-will.)

This classification also covers liabilities, if we consider them negative assets. The measurements recorded by the corporation in conformity with standard accounting procedure are concerned only with changes falling into the first class, but the exchange or market value of the undivided interest symbolized by the stock is determined by all three factors. The investor, paying a price in excess of book value for the stock purchased, has invested a portion of his capital in equities of the last two classes and has thereby divided his investment into a portion measured by the corporate books and a portion not so measured. Thus we come to the cross-roads, where the ways of the corporation and the investor begin to diverge and it becomes apparent that the measurement of the investor's capital involves two steps:

I. Measurement of the corporate capital.
II. Measurement of the investment in market equities not recorded on the corporate books.

The general principles governing the measurement of corporate capital are well-defined in accounting theory. They are hereinafter referred to as standard accounting procedure and it is assumed that data used for illustrative purposes have been determined accordingly. Methods of measuring the investment in market equities may be built upon three different foundations:

A. The maxim of the closed transaction.
B. Theoretical investigation of the economic laws which create market equities.
C. Examination of the empirical results of economic laws.

The first method strictly follows the tenets of orthodox accounting theory, while the second seeks to avoid the limitations of the first without repudiating that valuable collection of principles. The third finally, derives its conclusions from the market. Each method will be considered in turn.

§ 4. Investing in market equities.

In general, the purchaser's willingness to pay a price in excess of book value for the stock is evidence that he considers it a good investment. Even if he is mistaken in his judgment, it would be difficult to measure the amount of the initial loss suffered, because there is no closed transaction. It is the practice, therefore, to record the purchase by charging an account in the investment ledger with the total cost. In order to keep clearly in mind what has happened it may be convenient to introduce the form of diagram, which will be used a great deal in subsequent chapters.

On the left of Fig. 1 the corporate capital is shown as having two coordinates: the number of shares measured on the abscissa and the book value per share extended on the ordinate. The area below the axis represents, not negative quantities, but market equities not recorded on the corporate books.

The corporation depicted has an original capital of 100 shares, on which $100 a share was paid in. Whether this original capital of $10,000—indicated by the shaded area (C)—represents stock of par value, true no par value, or no par value with a stated value plus an initial capital surplus is irrelevant. Operations over a period of years have accumulated a $5,000 surplus S_1 (unshaded). At the time when the corporate books thus show a value of $150 a share, the market's appraisal is $250 a share or $25,000 altogether. The unrecorded market equity M accordingly amounts to $10,000.

At the right, the purchase of forty shares at $250 is shown. A comparison of the shaded areas representing the initial investments will disclose the difference between the corporation's and the investor's ideas as to what constitutes capital. To the former, forty shares mean an initial capital of $4,000 and an earned sur-

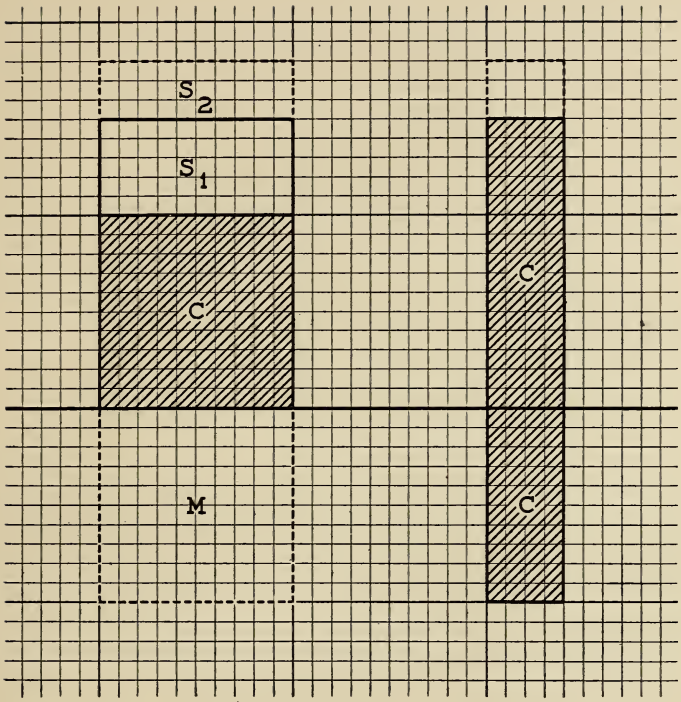

FIG. 1.—INVESTING IN MARKET EQUITIES

One horizontal unit = ten shares.

One vertical unit = $10 per share.

The corporate book equities are shown above the axis and the market equities below it.

Corporation on left, holder of forty shares on right.

C = Original investment (shaded).

S_1 = Earnings (unshaded) before acquisition of stock by investor.

S_2 = Subsequent earnings.

M = Market equity not recorded on corporate books. Holder of forty shares invested $4,000 in this equity.

plus of $2,000, to the latter an initial investment of $10,000 and no earnings.

If the company earns another $3,000 after its stock was bought in the market for $250 a share, the additional surplus S_2 (enclosed by the broken lines atop the diagrams) increases the book value by $30 to $180 a share. What happened to the market premium during the same period, standard accounting procedure is unable to measure, but that is not an adequate reason for rejecting its own findings without further ado and refusing to credit the investor with the measured increase in the value of the book equity. Possibly the original purchase price was so high as to make amortization advisable, but to do so is a direct offense against the principle of the closed transaction. There were two transactions. The first was the acquisition of an undivided interest in identified and measured assets with a premium paid for the privilege and the second was the change in identity of the assets acquired and the substitution of other assets having a higher value as ascertained by the same process of identification and measurement. Only by recognizing both transactions will it be possible to avoid misstating the original cost of the market equity acquired until the time arrives when it will become the subject of a closed transaction.

It appears then, that the most logical interpretation of standard accounting theory is one which distinguishes between the book value and the market premium paid for a share and considers each as a separate investment. The former is measured periodically by the corporation itself and the latter is best maintained at cost, pending final disposition. If this reasoning be followed, an occasion for adjusting the market premium can arise only when there is a change in the pro-rata share of proprietary interest represented by a stock certificate.

So long as conclusions regarding the nature and origin of market equities are inadmissible, standard accounting procedure can not be expected to do more than measure book equities and cling to the original cost of market equities. There is, however, no weighty reason why the laws creating market equities should not be considered and used in the form of simple approximations wherever possible. It should be remembered that depreciation can not be measured any more than appreciation can, yet there are several theories of depreciation in current use without resulting in protests against the violation of the maxim of the closed transac-

tion. It is logical that if the changes in the value of market equities purchased are not haphazard fluctuations but follow some simple rule, the application of that rule should be permissible.

§ 5. The laws governing market equities.

An investor purchasing market equities with book values (see Fig. 1) ought to make an effort to determine what the former represent. Analyses are often published by investment houses or brokers sponsoring certain securities, but little attention is paid to the information thus available after the purchase is made.

When the stock of a large company is purchased, good-will may attach to some assets and appreciation to others and there can be no doubt that their value is subject to change both in absolute amount and in terms of shares. This change is twofold. There is the gradual progress of values arising from operations and there is the sudden change caused by corporate actions, such as distributions. So long as only changes due to distributions are considered, the correctness of the procedure prescribed by the maxim of the closed transaction can not be questioned. If eleven shares now represent the same market equity as ten shares did at the time of the purchase, a corresponding reapportionment is necessary. But the question is, do eleven shares after, say, a 10% stock dividend or ten shares immediately before its declaration represent the same market equity as at the time of acquisition? If they do not, it is incorrect to acknowledge one kind of change and disregard the other. In such a case the long-term view is preferable, which offsets one development against the other as nearly as may be and records only the difference.

As an introduction to the laws governing good-will it should be noted that there are various kinds of corporations. Some are unable to reinvest their earnings, others can do so only in part, still others can use every cent they earn and there are cases where the retention of the entire earnings is insufficient to provide for expansion. It is an important duty of the corporate management to formulate dividend policies which conform to these conditions. A company which can not reinvest its earnings must distribute them; slowly expanding companies will distribute the difference between the total earnings and that portion which can be reinvested, while rapidly expanding companies will not only endeavor

to retain all earnings but must in addition attract new capital. This fundamental connection between earnings, expansion and distributions may be called the *principle of good management,* which demands that the corporate directors shall neither retain sterile earnings, nor overlook opportunities for expansion. (See also §§ 62–63.)

Mathematical analysis based upon these premises shows that the market value of common stocks can be expressed in terms of four variables:

1. The *earning rate* or the quotient of earnings by that portion of the corporate net worth which represents productive assets. This excludes idle assets which may have been hoarded.
2. The *expansion rate* or the rate of increase of the productive corporate net worth owned by the investor.
3. The *money rate,* at which the future services of capital are discounted.
4. The *horizon,* or number of years beyond which the investor is unable or unwilling to look into the future.

In the case of high-grade stocks, the *earning rate* can sometimes be considered perpetual. Since the difference between a perpetuity and a hundred-year bond is negligible, this will not necessarily mean that operations are expected to continue beyond a few generations. The *expansion rate,* on the other hand, is less permanent. In the natural order of development, its decline will precede the decline of the earning rate and its significance automatically disappears, when the earning rate declines to the money rate. The *horizon* is a practical substitute for the actuarial risk at which future expansion ought to be discounted. Instead of assuming a gradually declining visibility (increase in risk) extending into infinity, an abrupt limit to perfect visibility(absence of risk) is imagined to lie only a few years ahead. (N. B. In the appendix a formula is devised, which has two horizons, one for the earning rate and another for the expansion rate. In the interest of simplicity this complication is here omitted.)

The interplay of these four elements may be illustrated by simple examples which assume that the money rate, as well as earning and expansion rates are constant. A share of stock having a book value (not par value!) of $100 is acquired for say

$200, because it has an earning power of 10% at a time when money is worth 5%. By the end of the year the stock has earned $10 and it is desired to find its fair market value. The answer can be furnished only if the expansion rate is given, because only then is it known what portion of the $110 of book value represents productive assets. If the expansion rate is 5%, the productive net worth for the next year is $105, the market value of which is obtained by capitalizing the prospective earnings of $10.50 at the money rate. To that value of $210 must be added the liquidating value of the unproductive asset represented by $5 of undistributed earnings. If the expansion rate is 10%, the entire $110 of book value is productive and supports a market value of $220 corresponding to prospective earnings of $11.00. Finally if the expansion rate is 15%, $115 will be productive, provided an additional $5 can be raised. The market value accordingly ought to be $225, because only a contribution of $5 is lacking to make the investment worth $230.

The visibility into the future was here tacitly assumed to be zero. In other words, the investor who appraised the stock at $200, refused to believe that expansion would continue after the date of purchase. He accordingly based his appraisal upon a perpetuity of cash dividends equalling the entire earnings. Nevertheless, expansion did continue and therefore the good-will attached to the book equity increased at the expansion rate from $100 to $105, $110 or $115.

Next, let us assume that the horizon is two years ahead. This means that the investor expects to receive—in the form of cash dividends—the difference between the earning and expansion rates for the first two years and the entire earnings thereafter. Discounting these annuities at 5% will give fair market values of $209.52, $219.50 or $230.39 at the date of purchase.

If, at the end of the first year, the corporation's future prospects remain as bright as they were at the beginning, the investor will again look two years ahead and, failing to see the end of expansion emerge upon the horizon, will be inclined to repeat last year's bargain of buying $100 of book value for $209.52, $219.50 or $230.39. By so doing he will pay these prices for 100/105, 100/110 or 100/115 of the original productive equities, which have expanded at 5%, 10% or 15% in the meantime, although they may still be represented by the same stock certificates. In

effect, then, the market values of the three stocks have risen during the year from $209.52 to $225.00 (of which $5 is the cash dividend awaiting distribution), from $219.50 to $241.45 and from $230.39 to $259.95 (because only $5 is lacking to make it worth $264.95). In each of the three cases good-will has grown at the expansion rate from $109.52 to $115 (5%), from $119.50 to $131.45 (10%) and from $130.39 to $149.95 (15%), while book values have uniformly risen from $100 to $110.

The special case, where the horizon happens to coincide with the actual end of expansion, is also worth brief consideration. At the end of the first year the investor will expect only another year's expansion. The market value of the stocks will accordingly rise only at the money rate from $209.52 to $220 (of which $5 is the cash dividend awaiting distribution), from $219.50 to $230.48 and from $230.39 to $241.91 (because only $5 is lacking to make it worth $246.91). The good-will has grown by only $.48, $.98 or $1.52. These increases equal the money rate on that portion of the good-will, which was due to expansion (*viz.* $9.52, $19.50 and $30.39). The portion accounted for by the difference between the earning rate and the money rate has remained constant at $100 in each instance.

The law of good-will in terms of shares may then be formulated as follows:

When the money rate as well as the earning rate are constant, good-will attaching to common stock increases at the rate at which the book value of the common equity is expanding.

Or expressed in terms of a single dollar of book equity:

When the money rate as well as the earning rate are constant, good-will attaching to a dollar of book equity remains constant.

These laws will be valid until the end of expansion emerges upon the horizon. From then until expansion actually stops, good-will increases slowly in terms of original shares, but decreases per dollar of book equity. Thereafter, good-will again remains constant, both in terms of original shares and units of book equity.

In actual practice the discontinuous assumptions made to simplify mathematical analysis will give way to more continuous processes where the various stages of corporate development blend

imperceptibly into each other. The stocks in which bona-fide investors are most interested, are, however, almost exclusively in the initial stage, in which the end of expansion is still below the horizon. For high-grade listed stocks, the law italicized above is still valid. If it were not, they could not yield more than the money rate and no one would prefer them to bonds. A more detailed exposition of the mathematical theory illustrated here is given in the appendix. (See also § 38 and 63 and the concept of income, § 8.)

For investments in corporations, whose earning and expansion rates are sufficiently stable to permit the computation of trustworthy averages, the periodic measurement of good-will by a mathematical formula could be adopted without difficulty. For less stable enterprises a rough approximation might answer the purpose. Even when it is not feasible to determine the expansion rate with the desired degree of accuracy, it is possible to tell almost at a glance whether, in the past, the company has been earning more or less than it could reinvest. On this basis, corporations might be divided into two main groups; those expanding rapidly and those expanding slowly. Investors in the latter could be held strictly to the maxim of the closed transaction, while the holders of stock in a member of the rapidly expanding group would still err on the conservative side if they were to consider the market equity a constant percentage of the growing book equity, rather than a constant amount, *viz.* its original cost.

Another simple rule would be to consider that if a share originally purchased was worth a certain premium, all further shares received either gratis (stock dividend) or by way of subscription must be worth at least an equal premium in excess of their book value. This rule will be safe, so long as both the earning rate and the expansion rate on the book value of the common stock are higher than the rate at which new shares are issued.

These rules presuppose that the secular trend of the money rate is not increasing and that the price originally paid for a share was not in excess of the trend value of the stock computed either empirically, (See Figs. 2 and 3 and § 7) or from a mathematical formula (See appendix).

When the market equity consists of appreciation, *i.e.* the excess of liquidating values over book values, it is next to impossible to draw satisfactory conclusions, because appreciation is independent

of corporate operations and not always amenable to simple theoretical treatment. Present knowledge on the subject is based largely upon empirical data so that the measurement of this form of unrealized equity is best undertaken by an empirical method.

Among the general economic changes which create phenomena akin to appreciation, fluctuations of the money rate and of the purchasing power of money are noteworthy. A decrease in the money rate means that the same future services are worth a higher capital sum because competition among capitalists has become keener. The direct effect of a slight reduction of the money rate is a marked increase in the value of good-will. For this reason great care must be exercised in selecting the rate to be used in the computation of good-will, by giving consideration to the type of investment, abnormal temporary conditions, etc.

A change in the purchasing power of money has the effect of changing the yardstick by which wealth is measured. If it becomes necessary to adjust the distortion of records caused by such a development, values in terms of money must be identified by dates and multiplied by the respective rates of change. If satisfactory index numbers are available, the rates of change equal the quotients of the current index number over those in effect at the various past dates. Overconservative accounting procedure may also deserve mention. It creates a so-called "secret reserve" which likewise resembles appreciation.

The theoretical approach to the measurement of market equities furnishes worth-while results only with respect to good-will. Toward the solution of the problem of appreciation nothing better can be suggested than the old stand-by, the maxim of the closed transaction. In practice, good-will or appreciation seldom occurs alone. Almost invariably both are combined in a composite total, the elements of which are hard to separate. In such circumstances the task of estimating the future trend of an investment in market equities may grow complex indeed, until the inclination to turn to the market for guidance becomes difficult to resist.

§ 6. Demand and supply as appraisers of permanent values.

It has already been mentioned that the value of a production good may be considered a derivative of the value of its product, more exactly as the present value of an annuity consisting of all services expected from it during the remainder of its useful life.

This theory applies to a single capital good as well as to a composite unit of production and disregards entirely the concept of cost, valuable though it be to accountants.

Empirical attempts to determine this annuity value are continuously made in practice by a competitive process of discounting, which goes on in the minds of capitalists, who are thought to be constantly on the lookout for a higher return and will readily divert a part of their capital from its present employment, thereby bidding up the price of the undervalued goods until the possibilities for profit are again equalized in all fields of endeavor. Profits in the above sense, however, include not only money profits but all other compensation and satisfaction derived from the ownership of capital goods, including the so-called psychic income, which is an entirely individual and personal matter and is therefore subject to erratic changes. Also, human nature is prone to appraise the future in terms of present happenings, which are usually much less significant than their temporary proximity leads us to believe. In this manner, the estimates obtained are not based upon the real annuity to be received, but rather upon a series of imaginary payments equalling the last actual payment, and the consensus of opinion will shift about daily, as new events transpire. Similar considerations will prevail as to the supply of capital and be expressed in fluctuations of the discount rate entering into the appraisal. Furthermore, time is consumed in the process of comparative estimating, discounting and the subsequent redistribution of capital, so that the orders executed do not always represent the latest development. For all these reasons the exchange valuations obtained through the daily interplay of demand and supply are neither stable nor equal to the theoretical annuity value, but merely tend to oscillate around it, without ever attaining a state of equilibrium.

The behavior of quotations in the stock market clearly reflects this struggle of many contradictory influences which defy exact analysis. Generally speaking, fluctuations in the price of a certain stock are due either to causes connected with the corporation or to general economic conditions. The criteria determining prices are frequently listed as follows:

1. Earning power
2. Dividend policies

3. Financial condition
4. Management
5. Nature and expansion prospects of business
6. Industrial outlook
7. Condition of the money market
8. Psychological factors.

The first five depend upon the individual corporation. With the sixth they aid in estimating the future income to be subjected to the discounting process, while the seventh determines the discount rate to be used. The last, but by no means the least, influences human judgment in general. Substantial fluctuations in the price of a high grade stock are generally due to spontaneous or superinduced changes of opinion in which speculation, rumors and mass-psychology play an important part. It would be difficult to believe, for example, that well-informed persons have reduced their estimates of the total future earnings applicable to the common stock of a successful corporation by two-thirds, merely because the stock is now selling at one-third of the "boom" price. What happened may also be looked upon as a boom in the value of psychic income derived from idle but safe funds which temporarily increases the discount rate.

§ 7. The trend of market values.

If we agree that there is no reason to revise our expectations regarding the aggregate value of future services due us, there is no reason for changing our opinion as to their present value. Accordingly the investor has always striven to free himself from daily fluctuations in an effort to obtain the ideal present value of his investment, the practical computation of which, unfortunately, can not always follow the line of the theoretical reasoning, because the quantities entering into the computation are often too uncertain. We are fairly justified in assuming, however, that short-term fluctuations are due only to the various disturbing elements and that they must, therefore, centre at the theoretical level.

Statistical research into the recurring phenomena attendant upon business activity resulted in the classification of fluctuations into three main groups: seasonal, cyclical and secular, all of which are combined in the daily quotation curve of the stock. That business changes with the seasons was known long ago, and vari-

ous theories concerning the business cycle have received considerable publicity. It appears to be an established truth that there is a more or less regular sequence in the major fluctuations of a certain series of economic phenomena. Overexpansion and overcontraction are psychological reactions which must recur periodically so long as human nature remains what it is.

From the viewpoint of the investor the secular trend seems most important. Speculators, on the contrary, are interested in short-term changes, which enable them to turn their capital over quickly. The simplest, though perhaps not the most scientific method of separating the long-term trend from the cyclical and seasonal variations is that of measuring the cycle and constructing the so-called moving average.

During the Hoover administration a *Commission on Recent Economic Changes* reported that the cycles of the last fifty years varied in length from seventy-four months to twenty-nine months, both instances being exceptional. The normal range was from thirty-five to fifty months and the average about forty-two.[3] We may divide the succeeding cycles, irrespective of their lengths, into an equal number of observation items and compute a series of averages always based upon the total number of items in a cycle, each succeeding average depending upon a set from which an earlier item has been dropped and a later item added. Plotting the results into the centre of the items from which they were derived will give a fairly smooth curve, which may be considered an approximation of the trend. The main objection to centered moving averages is that they do not extend over the full length of the original series but begin and end at a distance of half-a-cycle from the terminal points. Freehand graphic extrapolation of the plot beyond the last computed average is sometimes used to overcome this drawback. Other difficulties, arising from the fact that the cycles are unequal in length, are described in text-books on statistical analysis. Mathematical derivation of a line of best fit is an alternative frequently employed. This process requires a knowledge of analytic geometry and careful judgment in the selection of the type of curve (straight line, compound-interest curve, parabola, etc.) which will best express the general economic law to which the time-series may be expected to conform. The better the selection, the more reliable is the information furnished by the

[3] *New York Times,* May 31, 1931, XX–3.

curve in the neighborhood of the terminal point. As a purely mathematical problem, any type of curve may be fitted to any time-series and the result obtained will always be the best fit of its type, but forecasts based upon the various curves would differ widely. For this reason the forecast is really made when the curve is selected. In practice, there is a limit to the refinements of technique in the fitting of complex curves to empirical data and all forecasts deduced from such methods always include a modicum of guessing.

The long-term trend thus has its limitations as a guide of the investor, but it may nevertheless be used to considerable advantage in appraising an individual position and in determining future policies. The difference between the book value and the trend value of an investment is the aggregate value of the market equity for which the premium was originally paid. This empirical method fails to differentiate between good-will and appreciation; in practice, however, the distinction is perhaps less important than assumed. By comparing book values and trend values for a number of years, definite conclusions can be drawn as to the most advisable treatment of the market premium purchased. Thus, if the distance between trend and book value remains constant, the cost of the market equity need not be amortized, no matter what it may consist of.

The book values and trends of two well-known stocks are compared with their weekly high and low market quotations in Figs. 2 and 3. The company selected for Fig. 2 has declared quarterly cash dividends at the rate of 9% per annum on a par value of $100 a share throughout the ten years ended December 31, 1933. In addition, subscription rights have been distributed at more or less regular intervals. The effect of all distributions upon the stockholder's investment in the company is reflected by the saw-like appearance of the curve of book values. A similar effect upon market quotations is distinctly noticeable. It is also interesting to observe the psychological effects of an impending distribution of rights. For Fig. 3 a company was chosen whose distributions consisted exclusively of stock dividends at the rate of 2.5% a quarter for the nine years ended December 31, 1932, and 2% per quarter for 1933.

The trends shown in these charts have been determined by dividing the twelve-month moving average of market quotations

by the corresponding book values and fitting straight lines to the resultant curves. The heavy lines marked "trend" are the product of the ordinates of the straight lines (not shown) and those of the book value curves. This method follows the mathematical theory presented in the appendix, which bases the measurement of the stockholder's wealth upon a unit of corporate book value and the earning and expansion rates peculiar to it. The fitting of a straight line, of course, is proper only if it is reasonable to assume that the average earning and expansion rate of a business cycle will remain constant for a long time to come.

CHAPTER II

WHAT IS INCOME?

§ 8. Introduction.

The investor's desire to safeguard his principal makes it of the utmost importance to him to determine the exact nature of the corporate distributions received. Until the advent and growing popularity of stock dividends, rights and the like, his problem seemed comparatively simple; of late, however, he is beginning to find himself in a quandary because, no matter in what way he proposes to treat a distribution of equity, somebody will be sure to turn up at the critical moment and tell him that he is all wrong. The question of "Are stock dividends income?" has thus become a favorite topic of debate and the standard title for a number of essays, in which five-to-four Supreme Court decisions based on constitutional technicalities are constantly being arrayed against "the ultra-modernistic school of those who insist that they have at last found a way of eating their cake and having it too."[1] Much of this controversy is due to a difference in the meanings ascribed to the word "income" as used in the debate.

In its broadest sense, income is a flow of wealth consisting of the total services rendered by a capital good in the course of its useful life.[2] Although the flow or stream yielded by a given capital good in a given employment has a more or less fixed shape in time, the existence of markets enables the capitalist to change this shape at will through the process of selling a portion of the stream and buying with the proceeds an equivalent stream having a different time-shape. Borrowing and lending or reinvesting are special forms of buying and selling.[3]

[1] For a satirical, but penetrating summary of the Eisner v. Macomber decision and the discussion it aroused see A. W. Atwood: Two and Two Make Five. *Saturday Evening Post,* May, 1930, p. 10 and ff.

[2] Cf. Irving Fisher: The Nature of Capital and Income. Macmillan Co., New York., 1912, p. 101.

[3] Cf. Fisher: The Theory of Interest. Macmillan Co., New York, 1931, Chapter V, §§ 4 and 5.

From the infinite variety of possible income streams, accountants have chosen a special or standard form, which will perpetuate the original fund of purchasing power invested in a capital good. Standard income has accordingly been defined as "that income which capital can yield without alteration of value." [4]

Capital gain or loss is the difference between standard income and alternative income streams. It is not income, if by income is meant a stream differing from the standard stream, but if standard income is chosen, capital gain automatically disappears. Accountants use the concept of standard income for purposes of reference and record even when the capitalist actually consumes a different stream of services. Capital gain then becomes unconsumed standard income, commonly called "surplus."

The measuring rod of standard income is applied from year to year to the new wealth produced by the sum of the original capital and the changing surplus. When thus used with reference to a shifting base, the standard includes as income not only the services actually consumed by the owner, but also the additional services which his capital might have yielded without declining below its original level. Nevertheless the wealth measured has actually *come in* to be added to the original wealth and so it seems difficult to deny the name *"income"* to it. In fact accountants are prone to consider this income as the only one worthy of the name. Two of their definitions are:

> "Income is increase in wealth measured in terms of money, accruing or received during a given period. It arises from the use of capital or the rendering of personal service or both, as distinguished from the return of capital. It includes earnings, gains or profits from any source." [5]

> "Income (in the broad sense), meaning all wealth which flows in to the taxpayer other than as a mere return of capital. It includes the forms of income specifically described as gains or profits, including gains derived from the sale or other disposition of capital assets." [6]

[4] Fisher: The Nature of Capital and Income, p. 333.

[5] Accounting Terminology. Preliminary Report of a Committee on Terminology. Published under the auspices of the American Institute of Accountants. Century Co., New York, 1931, p. 68.

[6] Federal Income Tax Regulations 77, Art. 41.

It is quite true that income so defined can not be used to determine the value of capital through the discounting process.[7] For this reason that definition which limits the term "income" to the actual services rendered by capital is preferred by some economists, while others express views more or less in accord with accounting theory.[8] Recognizing that the misunderstanding is chiefly verbal, Prof. Fisher writes:

> "In so far as our disagreement here is a matter of words, it may be that my terminology is at fault. I used the term *earnings* to include capital gain and the term *income* in the sense of the value of services rendered by capital. There is little objection to changing this terminology, *if we are willing to give up saying that capital value is the capitalized value of expected income.* We could *then* maintain that capital gain is income. But if income includes only those elements on the anticipation of which the value of capital depends, then the increase in the value of capital is most emphatically not income."[9]

Since the present study is concerned primarily with the entire change in the investor's capital level, it seems simplest to follow accounting usage and apply the term "income" to all measured capital increments. The many alternative, but equivalent services "upon which the value of capital depends" will then become synonymous with cash dividends and the entire proceeds from the sale of other distributions or of the investment itself, but excluding all reinvestments made therefrom. This concept is used in the appendix to determine the fair value of common stocks by mathematical methods. For the sake of better distinction between the corporation's and the investor's income the term "earnings" will be used only in the sense of "corporate earnings" accrued or received on the investor's holdings.

Having decided that, for present purposes, "income" is

[7] In the works cited, Prof. Fisher devotes a great deal of space to the proof of this truth.

[8] For the attitudes of various economists on this subject see Fisher: The Nature of Capital and Income. Appendix to Chapter VII, p. 345 and ff.

[9] This is a reply to Prof. F. A. Fetter's contention that savings are income. See The Theory of Interest, p. 455.

what comes in to be added to what one already has, the next difficulty arises: How do we determine just when somebody or something has come in? By watching him or it pass the entrance gate. Opinions may, however, differ; do we consider a guest to have arrived when he passes the garden gate or only when the front door has banged shut behind him? As a matter of fact we really begin to enjoy his presence only after he emerges from the guest-room and joins the assembled company.

If we apply this somewhat elementary simile to corporate earnings, we may ask at what point the income has come in? Was its receipt recorded on the books of the company, thereby increasing our book equity? Was it passed on to us in the form of a slip of paper purporting to represent it? Or have we already received it in or converted it into cash? We must, therefore, recognize that there are at least three kinds of income:

1. Income earned or accrued,
2. Income received in forms other than cash,
3. Income cashed.

In addition to these incomes there is the "realized income," a relative concept, reflecting our choice as to which set of gateposts we consider the real ones. Neither must we overlook "taxable income," an expression defining the location of the gateposts prescribed by income tax laws. These latter, as investors know, are rather an ambulant affair, coinciding now with "3" above and again with "2." They may even, by way of penalty, be set up next to "1."

§ 9. The measurement of income.

Income, under the definition adopted, is a flow of wealth the intensity of which can be measured by the volume passing through a measuring instrument in a given period. The ultimate form of income with which this study need be concerned is cash in the investor's hands,[10] but the same income may be identified at much earlier stages as gravitating toward him in intermediate forms, before final conversion takes place. How close to the final stage the measuring instruments should be set up depends upon the

[10] But see "real income" contrasted with "money income." Fisher: The Theory of Interest, Chapter I.

investor's needs. The greater the distance from the goal, the costlier the installation, but the more up-to-date the results.

It is here assumed that "income" really means "income earned or accrued." If so, it follows that distributions are not income but merely what their name implies, because they do not give the stockholder anything that was not already his in another form. But it should be understood that this "income" is merely the result furnished by a specific measuring instrument chosen. If another had been used, a different answer would have been obtained. A meter, for instance, might be unable to measure earnings, but still capable of measuring distributions. Would it not be necessary, in such an event, to base conclusions as to income upon the value of the distributions received? To retreat another step, the meter may be so inadequate as to be unable to record anything but the receipt of cash. Income could then mean nothing but cash. Various compromises between the measurement of earnings and the measurement of distributions are used by those who, for legal reasons, do not wish to admit that undistributed earnings can be income, but nevertheless recognize that distributions often exceed income and thus deplete the investor's original capital.

To summarize the various meanings of the word "income" it may be said that it is used to designate:

1. The entire difference between two succeeding capital levels representing the investor's wealth at two stated dates. (In this sense, income includes the so-called "unrealized capital increments," *viz.* increments which have not been realized by a closed transaction.)
2. The difference between two succeeding levels of the company's net worth owned by the investor, as determined by standard accounting procedure, which is unable to measure unrealized capital increments.
3. The fair market value of all distributions received, irrespective of changes in the capital level.
4. The book value or fair market value of distributions received, less adjustment of cost for certain forms of equity dilution.
5. The receipt of cash.

§ 10. The methods of recording income.

Evidently, "income" can have a meaning only if it is qualified by the name of the measuring instrument (recording method) by which it was determined. No method so far devised attains the ideal goal of measuring the entire difference between two succeeding capital levels, because none can measure "unrealized increments" with a sufficient degree of accuracy.

The only method which undertakes to measure every change and thus attacks the problem from the correct angle is the market method, but the machinery of determining intrinsic values through the interplay of demand and supply has not yet been perfected to a degree which would allow us to place much faith in its daily meter readings. The accrual method applied to the corporation's books in accordance with standard accounting procedure is still considered the highest development in measuring instruments, although it is admittedly a compromise, which measures income only to the extent described in point 2, above. In order that the name "income" might be applied to its findings, the description "unrealized capital increment" is given to whatever it is unable to measure. On the other end of the scale stands the cash method, steadfastly refusing to recognize any income other than cash. Any number of hybrid theories occupying a middle ground between the cash and accrual methods may be evolved, but as soon as their originators forget that they are merely striving to perfect practical approximations to a still unattainable ideal, they find themselves enmeshed in endless contradictions which detract considerably from whatever merit the method selected would otherwise have had. Outstanding examples of hybrid methods with noteworthy contradictions are the successive Federal income-tax laws.

§ 11. Primary and secondary forms of income.

Every investor must make some arrangement to compute his income, and whatever method he selects must be capable of measuring the entire flow sooner or later without letting any part of it escape. The various methods evolved differ only to the extent that those capable of recognizing income in many different guises may immediately proceed with measurement, whereas simpler methods must refuse to let the flow pass until it takes the form

which alone is familiar to them. This damming-up of the unrecognized flow creates a lag, by the amount of which the "realized income," that is, the income which passed our particular meter will always be behind the ideal change in the capital level. Whether the flow is positive or negative, the lag must, by its very nature, be cumulative until some of the pent-up income is changed into a form which can rush through the meter. After that energy is spent, the damming-up process begins anew, because the measured flow is again reduced to a dribble.

The primary forms of income to be measured are:

1. Unrealized capital increments (increase in market equities),
2. Corporate earnings.

If they do not lend themselves readily to the process, measurement of the secondary or derivative forms must be adopted as the next best thing. The secondary forms through which, ultimately, all income must pass, are:

3. Distributions.
4. Sales.

The unrealized increment, if not measured sooner, will become realized when the investment is sold. Corporate earnings, similarly, reach different meters in different forms: immediately as they accrue, upon distribution, upon sale of distributions or upon sale of the investment.

The difficulty with secondary forms is that they furnish no trustworthy information as to the real changes in the capital level. Accordingly each may represent *hitherto unrecorded income* or a return of capital or both. The extent to which either element is present can be determined by comparing the investor's records with the corporate books. Even though such a comparison will not disclose changes in market equities, the result is bound to be more accurate than that derived from artificial theories harking back to cost as of the day of acquisition, which take no cognizance of the fact that the world has kept on revolving ever since.

The phrase "hitherto unrecorded income" is worthy of special attention. Distributions, as such, are not income in the sense attributed to that term throughout this book, but they may well represent hitherto unrecorded income if a method other than the

accrual method was followed. In that event the question justly comes up, why they should not be recorded upon receipt, if they have been disregarded in their primary form. That a stock dividend may and often does represent equities accumulated through corporate operations after the investment was purchased (at an original cost which still represents its value on the investor's books), is a fact. Whether or not the receipt is sufficient reason for changing the cost basis is a matter of opinion, depending upon the recording method used. In neither event will the investor's books set forth the actual capital level of his investment, although one result may be closer to the truth than the other.

§ 12. The investor's requirements.

As soon as it is distinctly understood that no recording method is absolutely efficient, one may inquire: Just how efficient need a method be? The answer depends upon the status of the investor. A business man with a steady income will resort to investment merely to store his surplus safely and profitably; it will make little difference to him when and to what extent he realizes income. In fact, the less is realized, the less is the bother attendant upon handling it. In addition to choosing an investment of an essentially accumulative character, such a person will prefer the simplest form of record, regardless of whether it is able to furnish up-to-date information or not. His net worth will be the same whether he knows its exact amount or not.

The second type of investor is one who depends for a living upon the income from his investment. The principal consideration in his case is a steady flow of income not much smaller in amount than actual earnings, but nevertheless figured conservatively enough to safeguard the principal in lean years as well as in fat years. People having little financial knowledge and experience form the majority of this class, so that their problems merit consideration indeed. The common stock best adapted to their needs will be one with a high and steady earning rate and a low but reasonably sure expansion rate. If such an investment is held, the records may be as informal as those of the business man, ordinarily, however, a greater amount of care is needed; the information as to the actual value of the stock and its distributions must be nearer the truth. There would be no reason for limiting

living expenses to cash dividends, because the company follows a policy of reinvesting earnings, but neither should stock dividends be recklessly cashed without searching inquiry into their origin.

The third group of investors consist of those to whom investing is a business or a profession. They are chargeable with a thorough knowledge in financial matters, because they hold themselves out to the public as experts to obtain the funds necessary for their operations. Their methods of recording should embody the utmost refinements to disclose changes in the wealth invested as accurately and as promptly as possible. There is no need to substitute conservative accounting methods for conservative judgment. Speed and accuracy are the watchwords and an elaborate system ought to be set up to obtain the best results. Investment trusts are in this group, which depends for its existence upon greater success than can be achieved by the average individual. Further development in the theory of measuring income is necessary to progress in this field.

In addition to the three main groups of investors, there are the speculators, who buy and sell stock for a quick turnover in the market. Speculators are not greatly interested in corporate earnings; their aim is to gain the difference between buying and selling prices. The prime consideration of any recording method adapted to their needs must be the market. The truth that prices fluctuating daily can not measure permanent values becomes insignificant, because no one is interested in permanent values.

The foregoing brief review of the investor's requirements shows that it would not be desirable to unify investment accounting procedure by declaring one method as the right one and condemning all others. Each theory has its applications within the limits of which it can render useful service. (But see Chapter VIII.) In the following paragraphs the principal methods will be discussed in greater detail.

§ 13. The cash method.

The cash method of recording income is the oldest one extant. It originated at a time when business organization was a much less complex matter. As limited to the recording of income from common stocks it recognizes only two forms of income:

1. Cash dividends.
2. Profits on sale.

The recording process begins as the stock is purchased, when an entry is made, charging investment and crediting capital. Occasion for further entries arises only if cash is received from the corporation or if a part of the investment or distributions other than cash are sold. If the cash received is a regular operating dividend, cash is charged and income credited. If, on the other hand, the company is in process of liquidation, the investment account must be credited with successive receipts until the entire cost is canceled. Cash receipts in excess of that cost are then considered income, any deficiency being correspondingly treated as a loss. When the entire block of stock or a part of it is sold, the entire cost or the proper proportion of it is applied against the selling price to determine the profit or loss on the transaction. The receipt of property, however valuable, passes unnoticed until it is sold, when the entire selling price becomes a cash dividend. The same procedure must be followed with respect to distributions of equity, if the strict cash method is to be preserved in its original purity. What is nowadays called a cash method, really includes a number of hybrid practices.

§ 14. The evolution of hybrid methods.

The first objection to the strict cash method arose when property of unquestionable value was distributed as a dividend. If the asset received has a fair market value, why would it be wrong to charge that value to an asset account and credit dividends received in the same manner as if cash had come in? Some forms of property distributed are indeed so liquid that it is difficult to voice a valid objection to such a course of action. Especially is this true of marketable securities in other companies which the stockholder's corporation distributes in lieu of a cash dividend. In time this argument was universally conceded as valid, and the first hybrid method was born.[11]

The next attack followed the opening wedge made by property dividends and insisted upon the extension of the theory of marketability to the company's own stock received as a dividend. That stock was listed on the exchange as the others were; why discriminate against a security for which a preference had been shown by the very act of the original purchase? If further pur-

[11] Cf. Federal Income Tax Regulations 77, Art. 627 and corresponding articles of previous regulations.

chases were contemplated, the same market price would have to be paid!

This point, to the regret of many, was not carried with the same degree of unanimity as the first. The so-called conservative elements rebelled against the thought and, being rather at a loss to find the flaw in the reasoning, proceeded to build up an opposite theory of their own. Stock dividends, they said, were merely scraps of paper, which did not give the stockholder anything he did not have before their receipt, so that no additional value whatever could be ascribed to them. On the contrary, since the same equity was now represented by more scraps of paper than before, the cost of the old scraps must be spread over both old and new to make them all equal.[12]

There the matter rested unsettled for a long time, until a suggestion was offered in compromise. Let the company measure the value of the stock dividend by the amount it chooses to transfer from surplus to capital stock upon its declaration. The same value per share and no more may be charged to investment and credited to income upon the investor's books.[13] This pronouncement shows Solomonic wisdom in the sense that it penalizes the stockholders of a company which is loath to lose more than an insignificant fraction of its earned surplus, but it does not really determine the value of the stock dividend, because that is entirely independent of book entries. (See § 30.)

So far we have four rules telling us how to do the same thing. Each contradicts the others, but despite that, they have one striking feature in common: none of the four finds it necessary to investigate what happened to the company after the stock was originally acquired. With respect to stock rights, the situation is similar The strict cash method disregarded them until they were sold, when the selling price became a cash dividend. Next, it was contended that rights could be credited to income at their fair market value on the day received.[14] Opposition again arose and evolved two theories for apportioning the cost of rights, the first based upon the difference between the original cost of an old share and

[12] Cf. Federal Income Tax Regulations 77, Art. 628.

[13] Cf. New York Stock Exchange: Report of the Special Committee on Stock Dividends, Sept. 11, 1929.

[14] This procedure is still permitted by Federal Income Tax Regulations 77, Art. 58.

the subscription price [15] and the second upon the separate appraisal by the market of the share ex right and the right, respectively.[16] Under either method, the purpose is to allocate the cost of the original stock to the same stock ex rights and the rights, separately, in accordance with the ratios the two latter bear to each other on the investor's books or in the market.

The contest among the partisans of the various hybrid methods has been going on merrily for a number of years without tangible results. It is to be feared indeed, that no progress will ever be made, unless the problems are approached in a spirit of impartial research. At present, most of the contestants may be divided into two groups: one wants to make the best possible showing in the annual statement; the other is intent upon avoiding or postponing taxes.

§ 15. The accrual method.

The accrual method of recording income has long been established in almost every field of human endeavor, but it has signally failed to achieve popularity with the investor. Several reasons may be thought of to account for this odd fact:

1. Until very recently, almost all investors were private persons acting for themselves or in a fiduciary capacity and having no training in accountancy. To them the expression " accrual method " has an unpleasant sound, suggesting something highly intricate and technical.
2. The separate legal entity of the corporation obscures the essential connection between corporate earnings and the investor's wealth.
3. Corporate earnings are less certain than interest payments and it seems unconservative to accrue an income in one year and a loss in the next.
4. Reports on operating results are not always accurate nor promptly available.
5. No income tax need be paid until dividends are received or profits on sale realized.

[15] Prescribed by Revenue Act of 1924 and preceding Acts. Cf. Art. 39 of Reg. 65.

[16] Prescribed by Revenue Act of 1926 and subsequent Acts. Cf. Art. 58 of Reg. 77.

If the logical and practical merits of the accrual method as applied to investments can be demonstrated, the first two reasons will soon lose weight in a new era, in which investment management is developing into an important profession. The third and fourth reasons have largely disappeared already if, as mentioned in 1, one considers only high-grade listed common stocks and nobody who needs a regular income can afford to invest in others. Corporate earnings may be less certain than interest payments, but they are by no means less certain than partnership profits, to which the accrual method is commonly applied. Indeed, the evolution of the corporate form of organization was due directly to the desire to obtain a degree of permanency and stability which can not be expected from a partnership. The fifth reason fails to differentiate between tax avoidance and tax postponement, an error which often proves costly.

The accrual method of recording the investor's income will recognize the following sources of increase in wealth:

1. Corporate earnings.
2. Profit on the sale or repurchase of equities by the corporation.
3. Profit on the sale of equities by the stockholder.

Distributions of property (including cash and evidences of indebtedness) will reduce the stockholder's investment in the corporation and increase his uninvested or otherwise invested capital by the same amount. Distributions of equity leave the invested capital unchanged, but change the symbols representing it. The measurement of unrealized capital increments is not attempted.

In order that the investor's realized income may be determined under this method, it becomes necessary to measure:

a. The increase or decrease of the corporate book value of a share of stock during a stated period.
b. The corporate book value of all distributions received during the same period.

Inasmuch as the book value of equity distributions can be computed only by measuring the book value of the stock at the time of distribution, *a* may be omitted as a separate step and made to coincide with the dates when distributions are declared.

The practical application of the accrual method is somewhat

limited for the time being because many corporate accounting departments have scant regard for the stockholder and therefore the necessary data are not readily available. Distributions of equity are often made at intermediate dates on which the books are not closed, so that their exact value can only be approximated by reference to the last published statement. Assuming, however, that such statements are published quarterly, the last audited book value may be regarded as accurate enough, because that information, used on the accrual basis, will yield a more trustworthy and up-to-date picture of the investor's financial condition than any other method now in use. (See Figs. 2 and 3.) The petty difficulties which still oppose the general application of the accrual method of recording income to all large-scale investment operations will disappear gradually in the same measure as the principles of standardization and mass-production, to which American industry owes its unrivaled efficiency, are applied to the far too individualistic and uncoordinated practices of contemporary corporate finance.

§ 16. A logical hybrid method.

If the accrual method is rejected for reasons of convenience, it is desirable to adopt a substitute which will be as consistent and logical as possible. A simple rule upon which a method might well be based is that of disregarding corporate earnings when they accrue, but considering the receipt of any distribution whatever as presumptive evidence that income was realized in an amount to be ascertained by a comparison of the investor's records with the corporate books. Every distribution will be declared realized income up to the amount which represents hitherto unrecorded earnings, the maximum in any event being the corporate book value of the property or equity distributed. Such a method will agree with the accrual method so long as the book value of distributions exceeds earnings, but it will drop below the accrual level when the opposite is true.

For the purpose of all succeeding diagrams illustrating the investor's problems in detail, this method has been adopted in the sense that it determines the technique of the graphs, which always assume that the investor has made no record of corporate earnings since the last distribution. The unrecorded earnings are uni-

formly shown as areas above the axis delimited by broken lines and only the book value of the wealth distributed is brought down from its original position atop the bar representing the investor's holdings, to indicate the processes of transfer and recording. The remainder of earnings, if any, is allowed to stay unrecorded. The diagrams are all drawn in this manner, not because this method appears preferable to all others, but because the treatment emphasizes the distinction between recorded and unrecorded earnings, which is the key to the entire distributive problem.

§ 17. Income from investments in market equities.

Both the accrual method and what was called the logical hybrid method can be used only to determine the income from investments in corporate book equities. If the capital invested in the market equity shows no tendency to increase, the findings of either method may be accepted as a reasonably accurate picture of actual developments. It can not be denied, however, that under certain circumstances, market equities are steadily increasing in value. This increase is independent of speculative or other short-term market fluctuations, and follows the economic law that the value of a capital good equals the present value of all future services expected from it.

When a company is expanding, *i.e.* when it can use an increasing number of dollars from year to year, the stockholder can look forward to an increasing stream of services. As long as the earning rate of the company remains higher than the money rate at which these future services are discounted, additional good-will values are created from year to year, representing in effect the value of the privilege of contributing the new capital. As the examples in § 5 show, the value of the market equity usually increases in the same ratio as the book equity invested in the company. In such a case then, the investor is justified in writing up his investment in market equities from year to year and in considering the increase as income over and above that measured by the accrual method applied to the corporate books.

The practical aspects and limitations of such write-ups are discussed in conjunction with the individual distributions in Chapters III–VII. A theoretical exposition and mathematical analysis of stock yields will be found in the appendix.

§ 18. The market method.

The method of recording the investor's wealth at its daily market value is extremely simple. All that is necessary is to look up the quotations in the evening paper and adjust investment and income accounts accordingly. All distributions may be credited to the various income accounts at their market value, and the daily adjustment of paper profits takes care of all differences.

The use of the market method is limited to security dealers,[17] speculators, etc. and the unincorporated forms of investment trusts, which must admit or pay-off their members daily or weekly in accordance with market quotations. A comparatively simple set of books may be kept to record all transactions both at the market and in accordance with Federal income-tax regulations, so that a tax return may be prepared from the same record which shows operating results on an entirely different basis.[18]

§ 19. Graphic comparison of the methods of recording income.

In order that the reader may obtain a clear picture of how each recording method behaves in different circumstances, two graphs are presented, to which reference was made in the preceding chapter. Fig. 2 shows how the market value of a well-known stock was affected by a combination of four factors:

1. Operations,
2. Distribution of cash dividends,
3. Distribution of subscription rights,
4. Market conditions.

The first three factors are also reflected by the book-value curve. The four regular tooth-like indentions in each year are the quarterly cash dividends of $2.25 a share and the larger ones occurring in longer intervals are the rights. The approximate dates of all distributions may be ascertained by reference to the abscissa. The difference between book values at the beginning and end of any year equals the undistributed earnings, which gradually increase the stockholder's investment in the company. In

[17] Cf. Federal Income Tax Regulations 77, Art. 105.

[18] Cf. Gabriel A. D. Preinreich: Accounting Problems of the Unincorporated Investment Trust. *Journal of Accountancy*, May, 1931, pp. 361–377.

FIG. 2.—COMPARISON OF THE METHODS OF RECORDING INCOME

contrast with this development of a share on the books is the action of the market, the fluctuations of which are reduced to the trend. (See § 7.) In January, 1925, a share was purchased in the market for its book value $\overline{OB}$ plus a premium of $\overline{BP}$ or a total of $130, represented by the ordinate $\overline{OP}$. If the trend is considered the intrinsic long-term value of the stock to an investor who is not contemplating an early resale, it follows that a purchase for less than the price indicated by the trend is a worth-while transaction and the stock a good investment.

If the accrual method of accounting is adopted and the market premium originally paid for a share is left unadjusted despite the dilution caused by the rights (see § 5) the result of the investor's bookkeeping entries may be pictured by the saw-like line starting at the point P and paralleling the curve of book values. The premium paid will remain constant; the corporate earnings per share will be credited to income and all distributions will decrease the investment in a share by their book values. The book value of the rights may easily be determined. For instance the rights issued in June, 1926, were 1:6 @ $100, and the book value of a share at that date was about $119. Six times $119 plus $100 equal $814, one-seventh of which is the new book value of $116.29. The distribution of book equities, therefore, amounted to $2.71 a share.

Under the cash method the horizontal line of alternating dots and darts will express the recorded level of the investment. Distributions do not affect it, because they are credited direct to income at the amounts realized in cash.

The third method represented by the broken line is the Federal income-tax method. It coincides with the cash method up to the point where the receipt of rights is to be recorded. There, a theory already mentioned is introduced, which allocates the value of the old stock to the new stock and to the rights on the basis of their opening market quotations.[19] The exact percentages to be used are computed by various commercial service agencies. In the case cited 4.2136% of the old stock was declared to be applicable to the rights in 1926 and the cost of new stock correspondingly dropped from $130 to $124.52. In 1928 and 1930 percentages were similarly applied, producing the other two descending steps. The 1929 rights entitled to the subscription of

[19] Cf. note 16.

convertible bonds, not stock, and that irrelevant circumstance called for a new theory, pursuant to which the rights were made taxable as cash dividends of $5.6875 a share, instead of being used to dilute the cost in the manner of stock rights. For this reason no step marks the issuance of the bond rights under the income-tax method.

The three methods of recording the capital level may now be compared with the trend (see § 7), which is the best approximation of the actual change. Which method is the right one? No one, but the degrees of error are not equal. The income-tax method opposes the trend, the cash method disregards it and the accrual method follows it at least to the extent justified by realized corporate transactions, to the recording of which its scope is limited. The difference between the accrual method and the trend consists of an initial unrealized profit, $\overline{PT}$, and subsequent accretions.

Before drawing further conclusions, it may be well to examine another situation. In Fig. 3, three influences upon the price of a stock may be observed:

1. Operations.
2. Stock dividends of 2.5% quarterly for the nine years ended December 31, 1932 and 2% quarterly for 1933.
3. Market conditions.

The book-value curve is again comparable to the edge of a saw and reflects the offsetting influences of corporate earnings and stock dividends. From 1924 to 1932 each descending step equals 1/41 of the book value before the declaration of the dividend while for 1933 it is 1/51. Until the end of 1930 the reduction is more than wiped out by operating profits accruing in the next quarter. The book value of a share, accordingly, rises slowly. Late in 1925 a share of stock was purchased for $76, which represented a book value, $\overline{OB}$, of about $23.50 and a market premium, $\overline{BP}$, of $52.50. A look at the trend is sufficient to confirm the view that the purchase at that figure was rather a rash act at the time.

The three methods are again entered as lines radiating from the point P. The accrual method follows a course parallel to the book value, maintaining the premium unchanged; the cash method keeps the recorded capital level at the cost figure by cashing the stock

FIG. 3.—COMPARISON OF THE METHODS OF RECORDING INCOME

dividends and considering the proceeds as income; and the income-tax method adheres to the theory that stock dividends are new scraps of paper into which older scraps had been subdivided.[20] The descending steps are, in this case, computed in the same manner as for the book-value curve; until the end of 1932 the height of each step is 1/41 of the total ordinate including the step, for 1933 it is 1/51.

The relationship of the methods to the trend is obscured in Fig. 3 by the recklessness of the initial purchase. The premium of $25 above the trend might well be considered a dead loss at the time of acquisition, even though the tide turned later on in favor of the purchaser. Aside from this, the income-tax method again runs counter the trend, the cash method is neutral and the accrual method does its best to follow the rise which is, at least in part, predicated upon the steady increase in book values and the corresponding greater earning power per share. If the original purchase was reckless, the question arises, of course, whether or not it is wise to choose a method endeavoring to follow the trend. It may be better to adopt a not too drastic way of returning gradually below its level instead of increasing the capital recorded any further. The amortization of the excessive premium by the income-tax method is a good solution, not because it has theoretical merits, but because it counteracts past recklessness by present conservatism. By following that method until the end of 1927 the trend would have been overtaken, suggesting that the remainder of the premium is probably worth the money paid for it. From this point onward a change to the accrual or at least the cash method might have been indicated.

In addition to the methods presented, a number of other methods might have been used. The accrual method coupled with other suggestions for treating the premium (see § 5), as well as the various hybrid methods, will all record different capital levels.

§ 20. Comparison of incomes realized.

In the preceding section the ideal capital level was compared with the level recorded under various methods. A complement to this process is the recording of income, which may, in turn, be compared graphically in Figs. 4 and 5. The fundamental prin-

[20] Cf. note 12.

ciple of such comparisons is that the same aggregate income will be disclosed by each method after the investment is sold. Assuming that the sale of the stock shown in Fig. 2 took place on December 31, 1930, the incomes realized in each year according to the various methods are represented by the vertical bars of Fig. 4, the income-tax method at the left, the cash method in the centre and the accrual method at the right. The incomes of the first two methods consist only of cash dividends (shaded) and profits on sale (unshaded), whereas the accrual method measures a third kind of income, the increase of book values (shaded lightly). The differences in the amounts measured annually are offset by the differences in the final profit on sale, shown separately for the sake of better contrast.

Fig. 5 was compiled from Fig. 3, in a similar manner. As no cash dividends were distributed, the first two methods could record only the profits on the sale of the stock dividends, whereas the accrual method also took up the increase of the book value over the dilution of equities. Both Fig. 4 and 5 were constructed on the assumption that all distributions were promptly converted into cash by the investor. If the rights are exercised and the stock dividends are retained, a compounding of the investment in the company takes place, which may be calculated mathematically. (See appendix §§ 75–76.)

In Fig. 4 it may be observed that all three methods understate income, while the investment is held, so that a large profit is realized upon its disposal in 1930. Since an even flow of income is desirable, that method will be the best which realizes income most evenly. The accrual method comes nearer that requirement than the other two. In Fig. 5 the income-tax method is seen to understate income, while the cash and accrual methods overstate it, with the result that an investor using the first will realize a profit on sale when his fellows using either of the other two have to offset the excessive incomes recorded by a final loss. As already pointed out, this anomalous situation is occasioned by the unrecorded initial loss due to the excessive purchase price, which must be amortized in some way. A fairly even flow of income might have been obtained by using the cash method (centre bars) for the first three years and the income-tax method in the last two.[21] That, however, would have delayed the return to the

[21] For further possibilities see § 62.

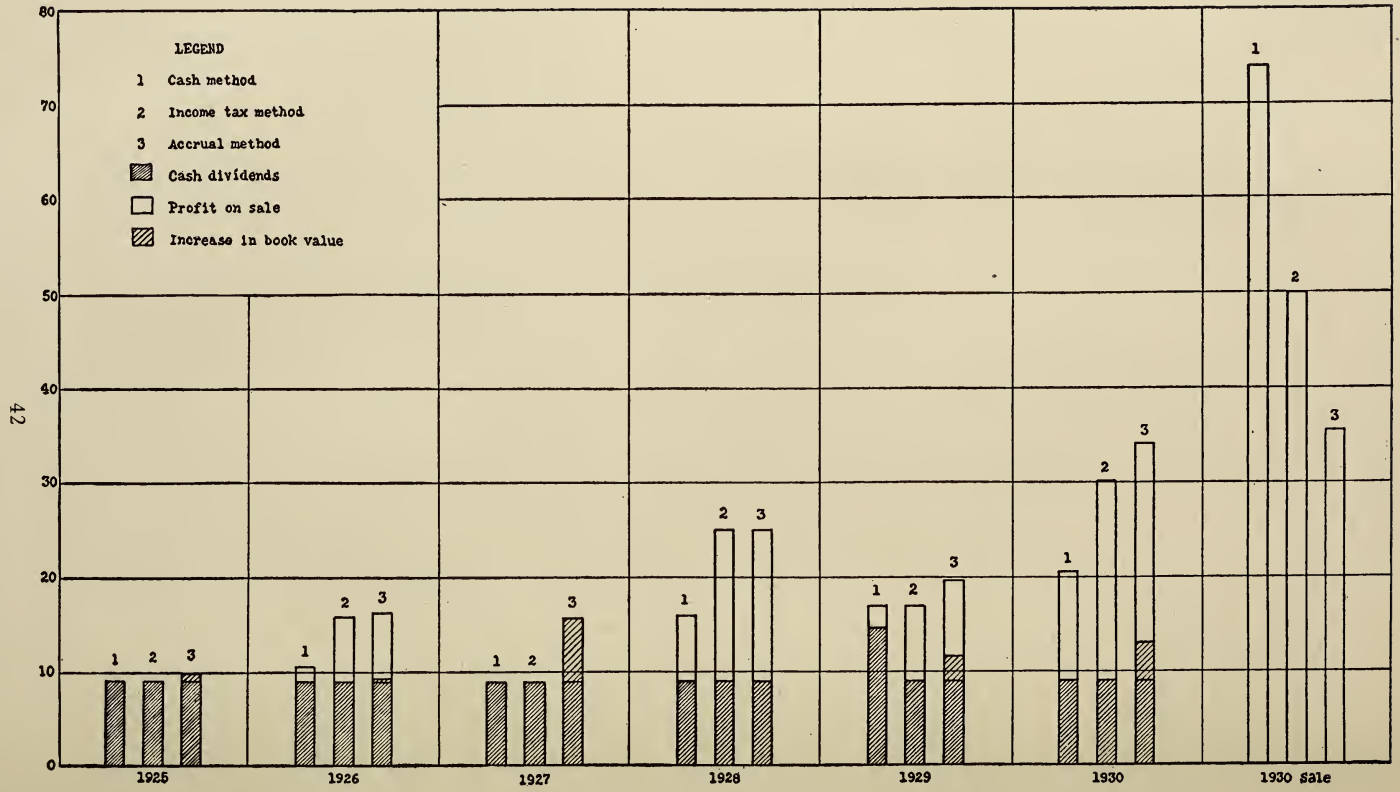

FIG. 4.—COMPARISON OF INCOMES REALIZED

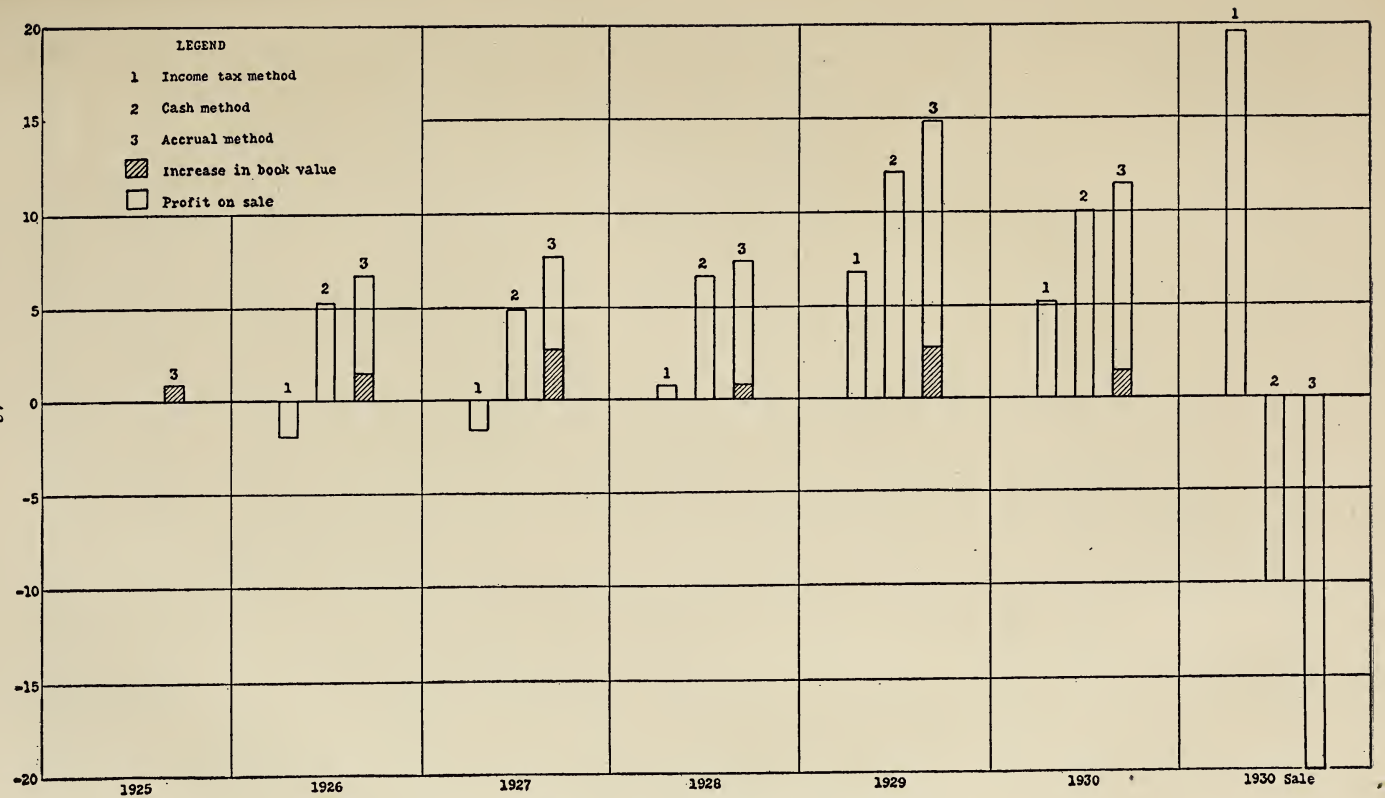

FIG. 5.—COMPARISON OF INCOMES REALIZED

trend. The earliest possible return below the level of the trend is desirable because such a step will lessen the chance of future loss. The trend being the best approximation of the ideal capital level for the long-term investor, a position on the trend equalizes the chances of a final profit with those of a final loss and minimizes the amount of both. Depending upon the class into which the investor belongs (see § 12), it will be desirable for him to remain to a greater or lesser extent below the trend. If he must buy above the trend he should never stay above it, except for a short initial period of transition.

The trend theory here formulated is contrary to the accounting principle of "cost or market, whichever is lower," but so is the treatment of fixed assets under standard accounting procedure. Whether or not the trend theory is applicable to the investor's holdings will depend upon his financial condition and intentions. If no circumstances are likely to arise which might force the sale of stocks at an inopportune moment, a temporary decline of the market below the trend may be disregarded; otherwise it is always best to anticipate unpleasant possibilities and defer pleasant ones. Those, however, are questions of conservatism rather than theory. The trend will yield the best results under the law of probabilities.

§ 21. Conclusions.

Although income may be adequately described in theory as the entire change between two succeeding capital levels or as the amount which may be withdrawn without altering the value of capital, it is nevertheless a very vague and unsatisfactory concept because it defies accurate measurement at the time it arises. When investors speak of income, they always mean a flow measured by their own favorite method, which often does not even approximate the ideal income as ascertained by the ultimate computation of the trend over a long period. As a practical definition of income, the following is suggested:

> *Realization of wealth which did not exist at the time the investment was acquired, but arose subsequent to that date.*

In this definition the meaning of the phrase "realization of wealth" depends upon the method used. For the accrual method

it will be synonymous with corporate earnings; for the market method with daily quotations; for the cash method with the receipt of cash; for other methods with the receipt of whatever they choose to acknowledge as a realized form of wealth. To decide whether a certain flow of wealth constitutes income or not, two questions must be answered:

1. Is it a portion of the wealth already recorded by the investor or has it arisen since the last measurement of the capital level?
2. Is it in a form which the investor is willing to recognize as a realized form?

The first question makes it necessary to examine not only the corporate records since acquisition of the stock, but also the behavior of the market for the same period. Action based only upon the investor's records to the exclusion of all other information is comparable to a game of blind-man's-buff.

The answer to the second question is dictated by expediency. The method chosen should never be considered an end in itself, but merely an imperfect instrument of navigation which helps to shape a course along a treacherous lee shore. The better a ship can sail the closer she may stand in before going about.

The accrual method may be trusted to show a tendency for following the trend, because both are influenced in the same manner by a number of identical factors. It is not entirely trustworthy, because it disregards market developments, although the stockholder's investment generally consists of market equities as well as of corporate book equities. An adjustment of the original market premiums paid may, therefore, be necessary upon occasion. In such a case it will be preferable to apply wherever possible the working principles of the economic law which created the need for adjustment.

Most other methods of recording income are entirely blind, in the sense that they are unable to determine the value and status of distributions under individual conditions. And since the condition of each stock is always an individual matter, the generalizations furnished are worthless. This truth to the contrary notwithstanding, such methods may be used to considerable advantage by the investor who knows their limitations, because they aid him in changing his position with respect to the trend, or to return to

the metaphor, enable him to navigate as close to the lee shore as he likes.

It is unfortunate that many different courses starting from different points may be steered in financial waters, for it interferes with the comparison of large-scale security holdings in which the public is interested. Whatever the value of a share of stock may be at a given instant, that value is evidently the same for every share, no matter how acquired or by whom held. To avoid having as many different values for the same stock as there are investors, the market value is increasingly used either as a footnote on the balance-sheet or in the form of a special unrealized surplus account, so that investment trusts are really appraised and compared on the basis of the market after all. That practice gives uniformity but need not lead to fair valuation.

Regulating the investor's accounting methods will bear no useful fruits unless the market can be made to conform to the same regulations. Until then, differences in time will always cause differences in valuation, due to the discrepancy between the standard method and the fictitious daily fluctuations of the capital level.

The solution of this vexing valuation problem will be brought nearer by every device which can be invented to avert erratic changes in market psychology and exert an equitable braking effect upon the oscillation of quotations around the trend. The smaller the amplitudes of swings, the greater the accuracy with which the trend can be determined. And if the current trend could be computed in a trustworthy manner, the recording of income could be made uniform. As a preliminary step in this direction, the "stabilization" of the book value of stock at par is suggested in § 60.

CHAPTER III

DIVIDENDS IN CASH, PROPERTY AND EVIDENCES OF INDEBTEDNESS

§ 22. The cash dividend.

The simplest form of distribution made by a corporation is the disbursement of cash pro-rata to its stockholders from profits realized. This disbursement is generally considered as made out of the profits most recently accumulated.[1] The earned surplus is conceived of as composed of annual layers one above another, and the dividend reduces the uppermost layer.

The most important effect of a cash dividend is the return of a portion of the stockholder's investment in the corporation. In this sense, every cash dividend is a liquidating dividend, because liquidation actually takes place. The total wealth of the stockholder remains unaffected, but a greater part of it is now represented by funds available for investment and a smaller part by the stock certificate. To reconcile this statement with the view commonly held that a cash dividend is income, it must be understood that the stockholder's invested capital, like the corporate net worth, consists of two parts: the original investment and the surplus. The recording methods in general use fail to measure the latter, but that does not change the fact that it exists. That this state of affairs must be fairly well known may be inferred from the behavior of market quotations; the opening price of a stock on the ex-dividend date, in normal times, is equal to the last closing price minus the dividend which is no longer included.

Whether a cash dividend is income or not depends entirely upon the status of the stockholder's records, since it is the recording process which transforms income into additional capital. A cash dividend is, therefore, income to the extent that the wealth represented by it was not previously recorded and a return of capital so far as a record was made. By capital returned one may, in this sense, mean surplus already recorded or original capital as the case may be. Fig. 6 illustrates a return of a portion of the un-

[1] Cf. Federal Income Tax Regulations 77, Art. 622.

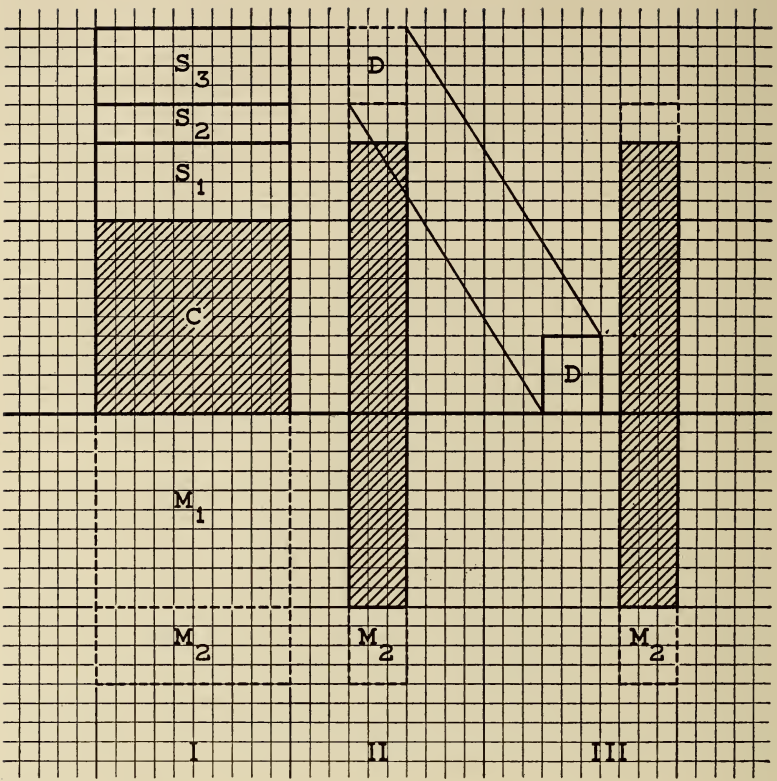

FIG. 6.—THE CASH DIVIDEND

One horizontal unit = ten shares.
One vertical unit = $10 per share.
The corporate book equities are shown above the axis and the market equities below it.
Investments shaded—earnings unshaded.

I. Diagram of corporation, showing original capital (C), surplus layers S_1, S_2 and S_3 earned successively and unrecorded layers of market premium M_1 and M_2.

II. Investor's records showing the purchase of 30 shares @ $240. The original corporate capital, the first year's surplus and the first layer of market premium were paid for in cash. The investor's share of S_2, S_3 and M_2 is still unrecorded.

III. Investor's position after a cash dividend D of $40 a share. S_2 and M_2 are still unrecorded.

recorded surplus only. On the left the corporation and the block of stock held by a stockholder may be compared before the declaration of the dividend. As the shaded areas represent the original investments of corporation and stockholder respectively, we know that the stock was purchased in the market for $240 a share at a time when its book value amounted to $140 only. Since the date of acquisition, the corporation earned $6,000 altogether, divided into the two surplus layers S_2 and S_3. In the market, however, the value of the stock increased during the same period by $10,000, of which $4,000 is an addition to the unrealized capital increment (M_2). The present market price is accordingly $340 a share.

The dotted areas represent unrecorded equities. On the corporate books only the market appreciation is unrecorded; the stockholder, however, has also omitted to take up his proportion of corporate earnings since acquisition. It is now decided to declare a 40% cash dividend, that is, a distribution of $40 a share on stock having a par value of $100. As far as the corporation is concerned, the surplus layer S_3 will disappear, thus cutting the dotted parallelogram D off the stockholder's equity. The $1,200 so represented will arrive in the mail in the form of a cheque. On the right of Fig. 6 the stockholder's status is shown after the arrival of the cheque. Whereas he formerly had a stock certificate worth $6,000 on the corporate books and $10,200 in the market, he now owns the same certificate worth only $4,800 and $9,000 respectively, plus uninvested cash amounting to $1,200. To what extent this condition is disclosed by his records will depend upon the method used. Both the strict cash method and the various "income received" methods will show the original investment at $7,200 and the receipt of cash offset by a credit to income amounting to $1,200. An increase of net worth has apparently taken place and the cash dividend is, correspondingly, income.

The accrual method would have recorded the following:

Upon opening the books of the investor:		
Cash	$10,000	
Capital		$10,000
upon purchase of the stock:		
Investment	7,200	
Cash		7,200

upon perusal of the financial statements:

Investment	1,800	
Income		1,800

and upon receipt of the dividend:

Cash	1,200	
Investment		1,200

Under this method, the cash dividend is not income, but a return of two-thirds of the additional capital previously reinvested from income.

The market method is really an accrual method, except that the market prices are accrued in the place of corporate earnings. The journal entries are similar to those given; only the charge to investment and credit to income will differ; the amount indicated by the diagram being $3,000.

The investor's total capital, assuming it to have been $10,000 in the beginning, was variously stated before receipt of the cash dividend as follows:

Cash and " income received " methods:		
Uninvested original capital	$2,800	
Invested original capital	7,200	$10,000
Accrual method:		
Uninvested original capital	2,800	
Invested original capital	7,200	
Invested earnings	1,800	11,800
Market method:		
Uninvested original capital	2,800	
Invested original capital	7,200	
Invested earnings	1,800	
Paper profits	1,200	13,000

And after the dividend was received:

Cash and " income received " methods:		
Uninvested original capital	2,800	
Uninvested earnings	1,200	
Invested original capital	7,200	11,200
Accrual method:		
Uninvested original capital	2,800	
Uninvested earnings	1,200	
Invested original capital	7,200	
Invested earnings	600	11,800

Market method:		
Uninvested original capital	2,800	
Uninvested earnings	1,200	
Invested original capital	7,200	
Invested earnings	600	
Paper profits	1,200	13,000

Three different results for the same set of facts!

§ 23. Liquidating dividends.

The liquidating dividend is often distinguished from the regular cash dividend by pointing out that the former distributes capital and the latter distributes income. That is not entirely correct. If a prosperous corporation is liquidated, the return of the accumulated surplus after the cessation of operations is also termed a liquidating dividend. On the other hand, an ordinary cash dividend paid out of corporate earnings may often return a portion of the stockholder's original investment. Using the word "liquidating" in the latter sense and not in that ascribed to it by income-tax regulations,[2] it is interesting to review what happens when a corporation distributes the surplus earned before the acquisition of the stock by the investor.

A cash dividend of 70% for instance, would have eliminated not only the surplus layers S_3 and S_2 in Fig. 6, but also one-quarter of S_1, for which the investor had paid cash. After recording the receipt of this dividend, the various recording methods would have stated the investor's net worth as follows:

Cash and "income received" methods:		
Uninvested original capital	$2,800	
Uninvested earnings	2,100	
Invested original capital	7,200	$12,100
Accrual method:		
Uninvested original capital	3,100	
Uninvested earnings	1,800	
Invested original capital	6,900	11,800
Market method:		
Uninvested original capital	3,100	
Uninvested earnings	1,800	
Invested original capital	6,900	
Paper profits	1,200	13,000

[2] Cf. Art. 625 of Regulations 77.

In this case, the cash and "income received" methods overstate income by failing to perceive that a part of the cash received is a return of the funds originally invested in the stock. Most investors are confronted with this development at the time when the first cash dividend is received, unless their holdings were purchased soon after a dividend date in a period of successful operations, when earnings exceed distributions. A number of other situations may arise, which similarly result in the return of a fraction of the original capital or of the earned surplus recorded under some method other than the strict cash method. If, for instance, a hybrid method permits the recording of stock dividends as income, a subsequent cash dividend may, in certain circumstances, distribute the same corporate earnings, thereby causing a dangerous duplication on the investor's books. (See § 32 and Fig. 13.) The return of capital frequently effected by the first cash dividend received is commonly disregarded, because the amounts involved are usually small, but the correct theory should not be overlooked, or a serious misstatement of equities may be the result, when the distributions are large.

Particular attention should be given to the effects of cash dividends not distributed in the regular course of operations but for some special reason, such as the reduction of working capital or total liquidation. Large profits on the sale of corporate assets always call for the amortization of that portion of the market premium paid for the stock which was due to the difference between the book value and the exchange value of the asset at the time when the stock was purchased. If the investor took no cognizance of the change in corporate book value when the profit arose, he must make the adjustment upon receipt of the special dividend which returns a part of the original investment in the market premium. The sale of a portion of the productive unit even without profit likewise necessitates the revision of the original market premium so far as it represents good-will not on the corporate books, but nevertheless paid for by the investor. It will again depend upon the recording routine, whether the adjustment is made immediately or only when a distribution is received. The way in which such adjustment may be effected is shown in a comparable situation affecting property dividends. In general an unbiased study of the behavior of market quotations will furnish valuable hints as to the changes to be made on the investor's

records. The procedure, however, is at best merely an approximation of the actual changes which often defy accurate measurement.

§ 24. The property dividend.

The distribution of profits in the form of property is less frequent now than it was in the early stages of corporate development. In the seventeenth century plantation companies were organized chiefly for the purpose of distributing the land made inhabitable and tillable by the expenditure of the corporate capital contributed by the adventurers. That action was more in the nature of liquidating dividends, since the company ceased to exist in its original form, after both capital and profit were returned in this manner. The distribution of merchandise in the regular course of business was practised by some of the early woolen mills, which conducted manufacturing operations on a joint-stock basis and distributed the finished product to their members to be sold by the latter in their individual capacities. Even the English East India Company once paid a dividend of ½% in "damaged calico."[3] In modern times, a property dividend usually takes the form of securities. After the World War, dividends in Liberty bonds or Anglo-French bonds were fairly common, and even more recently there have been many examples of the distribution of securities purchased for speculation or received in reorganization.

In many respects, a property dividend is entirely similar to a cash dividend, but there are certain exceptions First of all, a property dividend reduces the stockholder's investment in the company by substituting another investment for it. This in itself is no serious departure from the cash dividend, but it merits attention, if the book value and the exchange value of the property distributed are not identical. Needless to say, they seldom are!

Whenever such a difference exists, the question must at once be asked: How much did the investor pay for the property now distributed, when he purchased his stock? Unless it was acquired after the stockholder joined the company, the purchase price of the

[3] For a detailed description of early financial practices see W. R. Scott: The Constitution and Finance of English, Scottish and Irish Joint Stock Companies to 1720. The University Press, Cambridge, 1912.

stock must have included the exchange value of the property at that time. Considering the numerous forms of property which a company might distribute as dividends, inquiry into the various possibilities would lead too far afield, had not the scope of research been limited to high-grade listed stocks of a type widely held among the public. Such companies would not, ordinarily, distribute property dividends, except stocks and bonds of other companies or government securities, the market value of which at various dates may easily be ascertained.

To confine the discussion to a concrete case, let us start from the same premises as in Fig. 6. Be it understood that $30 of the market premium per share was not paid for the company's goodwill, but rather for the difference between the book and exchange values of certain securities on the day on which the investor bought his 30 shares. Fig. 7 presents the same company and stockholder as Fig. 6, except that the market premium at the time of acquisition M_1 (Fig. 6) is divided into the appreciation of the securities A_1 and the remainder M_1 (Fig. 7). A similar subdivision of M_2 (Fig. 6) into A_2 and a remainder M_2 (Fig. 7) is effected to show the changes in the market's appraisal, which occurred subsequently.

The 40% dividend is now declared in marketable securities worth $4,000 on the books and $9,000 in the market. The investor will again receive $1,200 in book value as if it were cash, except that those securities cost him $2,100 and are now worth $2,700. What is his income from the property dividend? Disregarding income-tax regulations which, after all, merely codify one of the many possible hybrid methods of recording income, he has the choice of valuing the securities at cost, at the market or at an intermediate figure. Standard accounting procedure favors the lower of the first two.

The right half of Fig. 7 reflects this result, including the dotted areas for market changes. The stockholder's records before the property dividend will disclose the same status as before the cash dividend in Fig. 6. After receipt of the securities, on the contrary, the figures will be:

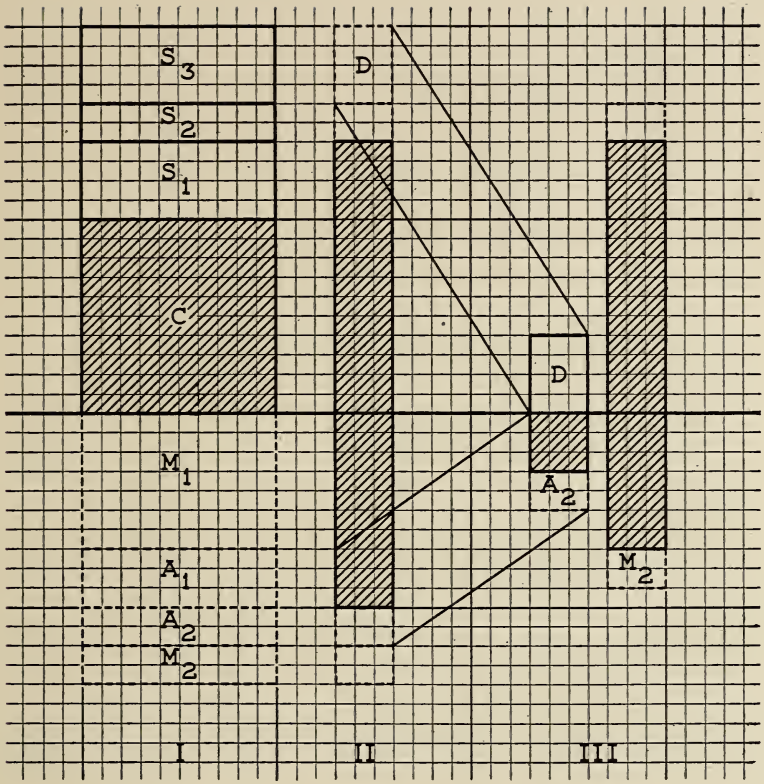

FIG. 7.—THE PROPERTY DIVIDEND

One horizontal unit = ten shares.
One vertical unit = $10 per share.
The corporate book equities are shown above the axis and the market equities below it.
Investments shaded—earnings unshaded.

I. Same corporate capital structure as in Fig. 6.
   M_1 = Market premium due to goodwill of corporate business at the time the investor acquired his 30 shares.
   M_2 = Same accrued between date of purchase and date of dividend.
   A_1 = Market premium representing appreciation of certain corporate property between the date of its purchase by corporation and date when investor purchased his 30 shares.
   A_2 = Same accrued between date of purchase by investor and date of dividend.

II. Position of investor before declaration of dividend. (Same as in Fig. 6.)

III. Position of investor after receiving as a dividend the property to which appreciations A_1 and A_2 attach.
   D = Corporate book value of property distributed.

Cash method:			
Uninvested original capital		$2,800	
Invested original capital		7,200	$10,000
"Income received" method:			
Uninvested original capital		2,800	
Invested original capital		7,200	
Invested earnings		2,700	12,700
Accrual method:			
Uninvested original capital		2,800	
Invested original capital No. 1	$6,300		
Invested earnings No. 1	600	6,900	
Invested original capital No. 2	900		
Invested earnings No. 2	1,200	2,100	11,800
Market method:			
Uninvested original capital		2,800	
Invested original capital No. 1	$6,300		
Invested earnings No. 1	600	6,900	
Invested original capital No. 2	900		
Invested earnings No. 2	1,200	2,100	
Paper profits No. 1	600		
Paper profits No. 2	600	1,200	13,000

It may be noted that the investor's aggregate wealth as recorded by the accrual and market methods is the same as after the cash dividend; the cash and "income received" methods, on the contrary, show new results, thereby giving evidence of their "blindness" or inability to grasp fundamental facts.

Further complications may be introduced into the property-dividend problem by considering the earnings of the securities distributed. Suppose, for instance, that it is desired to record their receipt not at cost but at cost plus accumulated earnings. It may well be that the greater portion of the corporate income was derived from the securities of subsidiaries recorded on an accrual basis. If some of the holdings are distributed, the investment in the parent company's stock ought to be reduced not only by what the subsidiary's stock indirectly cost when the former was acquired, but also by the subsidiary's undistributed earnings

since that date. If these earnings amounted to $300, the stockholder's records under the accrual method may be revised to read:

Uninvested original capital		$2,800	
Invested original capital No. 1..	$6,300		
Invested earnings .....No. 1..	300	6,600	
Invested original capital No. 2..	1,200		
Invested earnings .....No. 2..	1,200	2,400	$11,800

The grand total remains unchanged for both the accrual and the market methods. Another situation arises if the securities distributed were always stated upon the corporate books at their original cost. In that case the figures will be modified as follows:

Uninvested original capital		$2,800	
Invested original capital No. 1..	$6,300		
Invested earnings .....No. 1..	600	6,900	
Invested original capital No. 2..	900		
Invested earnings .....No. 2..	1,500	2,400	$12,100

This procedure seemingly amounts to a realization of $300 of market appreciation; actually, however, corporate earnings had been understated and are now adjusted. The grand total shown by the market method will still be $13,000, because the paper profits are reduced to $900.

§ 25. Dividends paid in evidences of indebtedness.

A convenient form of maintaining the regular dividend payments of a company temporarily short of cash is afforded by the scrip dividend. Scrip is a promissory note, usually bearing interest and maturing either upon a specified date or after a specified transaction, such as the sale of a bond issue, has been consummated. Sometimes, convertible scrip is issued, giving the right of exchange for one of the many forms of corporate stocks or bonds. Such scrip is really the combination of two different distributions, one a promissory note and the other an option. Scrip certificates convertible into stock frequently participate in dividends.

The issuance of bonds in payment of dividends may be con-

sidered an extreme measure, because the fixed charges of the company are increased by the creation of absolute obligations when there seems to be no apparent need for such action. Bond dividends, under certain conditions, may lend themselves easily to the perpetration of fraud upon creditors, if a procedure somewhat similar to the tactics of the Royal African Company (early eighteenth century) is followed.[4]

Short-term notes or debenture bonds are sometimes distributed, when it is desired to conserve the cash for working purposes, but even this is hard to explain, unless by some arrangement intended to induce preferred stockholders to waive voting rights reverting to them on account of the non-payment of their cumulative dividends. The payment of dividends in preferred stock might possibly be a better solution of this particular difficulty.

Evidences of indebtedness are either worth their par value or they are not. If they are, they may be treated as cash dividends, but a differential often exists. Bonds, for instance, are seldom quoted at par and since their market fluctuations are confined within comparatively narrow limits, greater faith may well be placed upon an appraisal by the market than in the case of stocks. Bond discounts or premiums are unavoidable, because money rates fluctuate with the relative supply of capital and with the risk, whereas the coupon rate is printed on the certificate and is therefore constant. When bonds are sold, the difference between the proceeds and the par value is posted to a discount or premium account to be amortized over the life of the bonds. There is no reason why the same procedure should not be followed when dividends are made payable in bonds. In either event, dividend payments are maintained with borrowed funds upon which two different valuations should not be placed. For example, a stockholder may buy his company's $100 bond for $80 and this amount may later be returned to him as a cash dividend. The same result could have been obtained by distributing the $100 bond direct. In the latter event, what is the value of the dividend, $80 or $100? It is urged that to charge the corporate surplus with the entire $100 is more conservative than to defer $20 for gradual amortization, but the same reasoning applies when the bonds are sold at $80. For later comparison (§ 31) with the Stock Ex-

[4] Scott, op. cit.

change rule of determining the value of stock dividends,[5] it should here be noted that the amount charged to surplus is not conclusive evidence of the value of a distribution. If the company persists in charging surplus with $100 for each bond distributed, it will in effect create a secret reserve of $20, which should be reflected in a proportionate increase of the market premium commanded by the stock. In other words, the market value will drop, not by the par value of the bond dividend applicable to a share, but only by the present value of the future payments promised on the face of the bond. The investor unwilling to acquiesce in the corporate fiat may take his cue from the market and make a corresponding adjustment.

The thing to be remembered by the investor resorting to such a step is that a company, which has written off the discount at the outset, will not need to amortize it. Annual earnings will therefore be overstated proportionately by sums which the investor must take into account by writing up the book value of his bond and by simultaneously transferring the increased market premium of the stock back to book value, so that upon the maturity date of the bond he may again agree with the figures recorded on the corporate books. In ordinary circumstances, it will hardly pay to disagree with the company's accounting methods and then laboriously restore the agreement again, but the theory is mentioned for its bearings upon distributions of preferred stock.

§ 26. Distributions of preferred stock.

As far as the common stockholder is concerned, preferred stock is a form of indebtedness. If it is not redeemable, there is no basis for the amortization of the discount or premium, so that any differences between par value and proceeds are commonly charged to earned surplus or credited to capital surplus in accordance with par-value statutes, although it would be better to state the entire issue at the amount realized. The difference of opinion between the company and the common stockholder as to the value of a distribution in preferred stock may arise in the manner described in the preceding paragraph, but no subsequent adjustments of the discount or premium by the investor are necessary in the absence of a definite redemption date, except in extreme cases, where the

[5] Cf. New York Stock Exchange: Report of the Special Committee on Stock Dividends. Sept. 11, 1929.

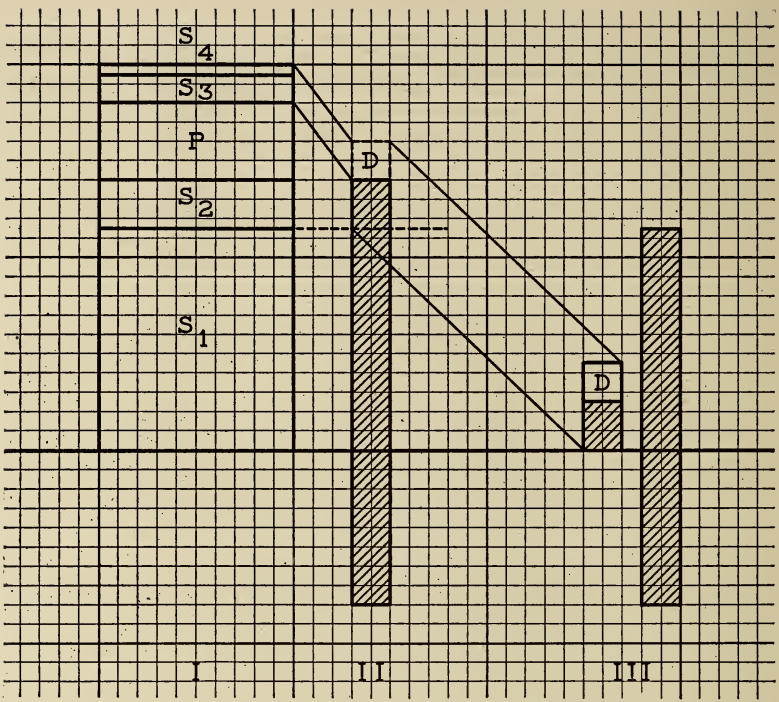

FIG. 8.—DISTRIBUTIONS OF PREFERRED STOCK

One horizontal unit = ten shares.
One vertical unit = $10 per share.
The corporate book equities are shown above the axis and the market equities below it.
Investments shaded—earnings unshaded.

I. Common equity of corporation per its balance sheet.
   S_1 and S_2 = Layers of wealth (capital and/or surplus) in existence at the time the investor purchased 20 shares.
   P = Part of $90 a share selling price of preferred stock misapplied by stating it at its nominal value of $10 a share.
   S_3 and S_4 = Surplus layers accruing subsequent to purchase of 20 shares by investor.

II. Investor's position, showing acquisition of 20 shares @ $220 at a time when the book value of a share was $140.

III. Investor's position after receiving half a share of preferred stock as a dividend on each common share.
   D = That part of the distribution which the investor may consider income.

market value of the preferred stock changes so seriously as to necessitate a special inquiry.

More difficult problems will confront the holder of common stock if preferred stock without par value is outstanding and if the company does not conform to standard accounting procedure. He may have acquired, for instance, 20 shares of stock @ $220 in a company, the capitalization of which was described at the time as follows:

50 shares of $6 cumulative preferred stock without par value	$ 500
100 shares of common stock without par value	18,000
	$18,500

It is unknown what amount if any was originally paid in on the common stock, but the preferred stock sold for $90 a share and is now quoted at about the same price in the market.

Fig. 8 shows on the left the common equity as recorded on the books. The surplus layer P is a part of the preferred equity misapplied by understating the value of the preferred stock on which $4,500 and not $500 was paid in. The layers S_1 and S_2 existed when the investor's holdings were purchased, whereas S_3 and S_4, amounting to $1,500 and $500 respectively, were earned subsequently. The acquisition of 20 shares @ $220 was equivalent to an investment of $140 in book value and $80 in market premium per share, since the layer P must be eliminated.[6] The earnings on this investment amount to $20 a share, corresponding to S_3 and S_4, and are shown in dotted form to indicate that they are still unrecorded.

When preferred stock is distributed at the rate of half-a-share for every share of common stock, the company will transfer the surplus layer S_4 of $500 from the common equity to the preferred-stock account, to maintain the latter at $10 a share, and will thereby create the fiction that a share of common stock now has a book value of $195 as against $200 before the dividend. Actually the

[6] The text of the preferred stock certificate, especially the liquidating value of a share stated thereon must be carefully examined in the case of freaks or if liquidation in the near future is a possibility.

book value was $160 and is now $115. The stockholder has received $900 to be recorded as follows:

Investment in X Co. preferred stock	$900	
To Investment in X Co. common stock		$500
Income		400

The diagram may also be used to determine the investor's financial condition if the preferred stock was not distributed to common stockholders, but used to cancel cumulative preferred dividends or for some other purpose. The same $900 was taken from the value of 20 shares, but without being returned in another form. The actual loss is $900, but as the $400 earned surplus included in that loss was never recorded, a $500 credit to the investment account, offset by a charge to income, will bring the records up to date.

The trend of thought illustrated in Fig. 8 is somewhat involved because two independent problems are combined. The review and adjustment of the corporate balance-sheet is a separate task, which need not be injected into a discussion of distributions, except to demonstrate how dangerous it is to use figures not properly reviewed and adjusted.

§ 27. Assessments.

Stockholders are sometimes asked to contribute additional funds to the company to offset the effects of financial reverses and enable it to resume operations with an unimpaired capital. In general, stockholders are under no obligation to accede to this request in the absence of a statutory liability such as is imposed in most states upon bank stock and in some states with respect to all corporations. Whether a majority vote at a stockholder's meeting may obligate the dissenting minority is a moot question which is now generally avoided, as other methods of raising capital are not only more attractive, but will also prevent hardship to the individual.

Assessments have also been made in the absence of losses, in order to expand operations, but the instances are rare. The right to assess stockholders may be acquired at the time of organization by the expedient of obtaining subscriptions for a higher amount than will be needed in ordinary circumstances and leaving a part of the price subject to future calls. The outstanding example of

this method is the Federal Reserve System, the members of which have subscribed twice the amount actually paid in, the remainder being callable in case of emergency.

An assessment is the opposite of a dividend in cash, property or evidences of indebtedness. By contributing to the assets of the corporation, the stockholder increases the equity represented by his stock certificate to an equal extent and his financial status remains unchanged, except that a greater proportion of his total private fortune is now invested in the company than there was immediately before the assessment. The assessment, therefore, increases the book value of a share and corporate net worth in the same proportion.

CHAPTER IV

STOCK DIVIDENDS

§ 28. Introduction.

A stock dividend is a free pro-rata distribution of additional shares to stockholders. Its effect upon the corporate capital structure may be reviewed in Fig. 9. Diagram I shows the corporation immediately before the declaration of the dividend.

Instead of 100 shares, there will be 125 outstanding after the distribution and they may be pictured by extending the base line by one quarter of its former length. As in the case of the cash dividend, the top layer of surplus S_3 comes off but, instead of passing out of corporate control, it remains with the company in the changed form indicated by diagram II. Since no assets left the company, its net worth can not have changed; the area S_3 was merely brought down to one side, leaving the total area before and after the dividend unchanged. Expressed in figures:

100 shares @ \$200 = 125 shares @ \$160 = \$20,000
and 100 shares @ \$ 40 = 25 shares @ \$160 = \$ 4,000

Here we may make an interesting comparison between the cash and the stock dividend. A 40% cash distribution seems to have used up the same \$4,000 layer of surplus as 25% in stock; in either case, the profits of the third year were lopped off, the uppermost remaining surplus layer being that of the second year. This conclusion is apparently contradicted by the journal entry which accountants are wont to make, whenever stock dividends are declared. For the sake of simplicity let us assume that the company's stock has a par value of \$100. In order that the new stock be fully paid and non-assessable, \$100 per new share issued must be charged to surplus and credited to capital stock. This gives \$2,500 instead of \$4,000. What became of the difference of \$1500? As shown in diagram II, the surplus layer S_3 was divided into two portions, the lower of which (\$2,500) now matches the capital stock, while the upper (\$1,500) is the counterpart of the older surplus layers

S_1 and S_2. The $1,500, therefore, no longer represents earned surplus, but capital surplus paid in, to the end that the old and new stock may be on an equal footing. This distinction is not made for the purpose of implying that the "matching" surplus thus paid in is not available for dividends under the same conditions and to the same extent as S_1 and S_2, but merely to keep the fundamental concepts of earned surplus and capital surplus intact.

Perhaps the matter may be better understood, if we assume that the stockholders, upon receipt of the 40% cash dividend, decided to reinvest the entire amount. To how many shares would they have been entitled at the book value? To 25, or the same number they received through the issue of the stock dividend. They would have been obliged to pay a premium of $60 for each new share to match the undistributed surplus of the old shares, and that premium is, under the rules of standard accounting procedure, recognized to be capital surplus.

We may then, draw the conclusion, that, so far as the ultimate effects of the transaction are concerned, a stock dividend is equivalent to a cash dividend followed by a subscription of new stock at the new, reduced book value. It is understood that there is a difference from the legal point of view, because a stock dividend is a compulsory subscription, whereas a cash dividend plus a subscription are two independent steps, the second of which is voluntary. This difference may or may not justify the special treatment accorded to stock dividends under income-tax laws, but the point at issue there is merely that of the equitable principles of taxation and not a question of fact as to the realization of income.

§ 29. Are stock dividends income?

From the preceding discussion of the nature of income it should be apparent that it is impossible to give a direct answer to the question of whether any distribution is income or not. All that can be done is to identify the wealth distributed as being either a part of the original capital or of a subsequent accretion thereto. The latter in turn, may have been recorded or not. If it was recorded when it arose that action transformed it into an additional investment, and in that case the distribution is nothing but a change in form. If it was not recorded, the question must be answered whether the fact of distribution is a sufficient reason for recording

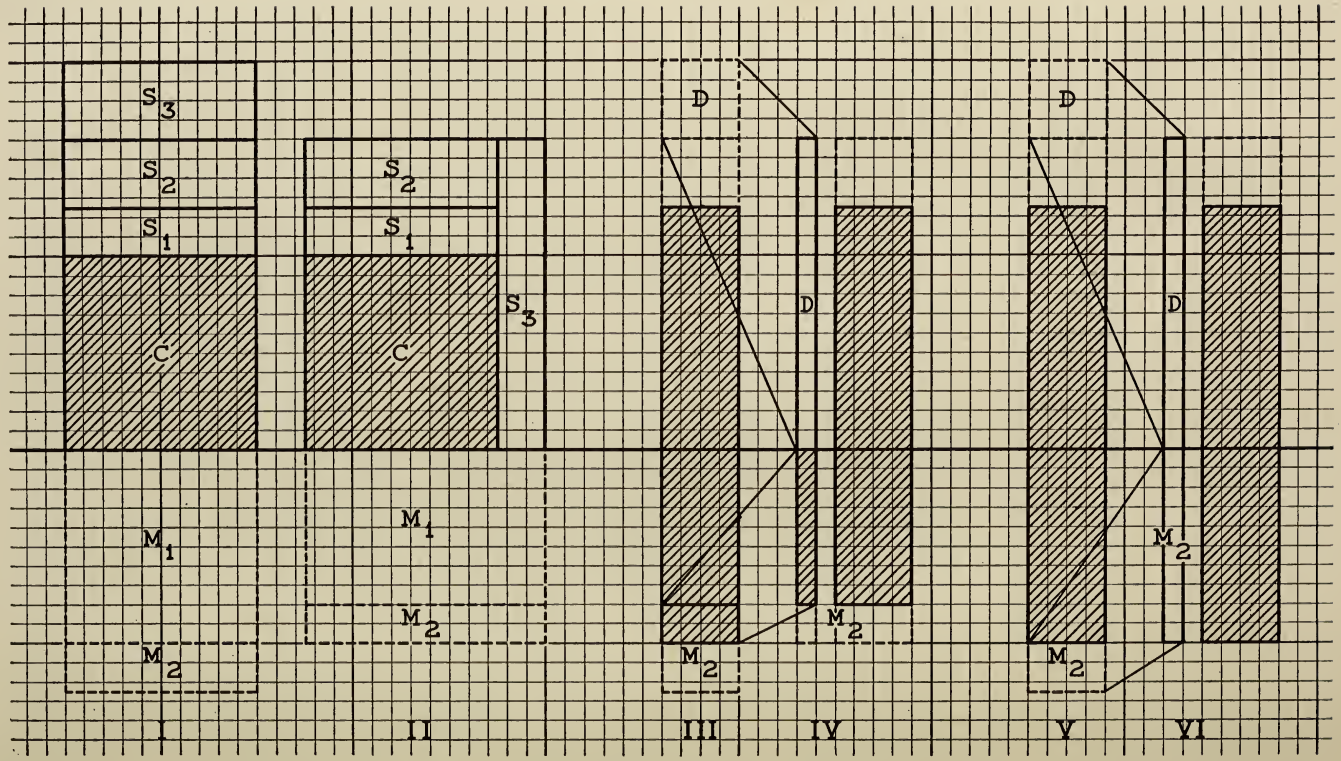

Fig. 9—STOCK DIVIDENDS

One horizontal unit = ten shares.

One vertical unit = $10 per share.

The corporate book equities are shown above the axis and the market equities below it.

Investments shaded—earnings unshaded.

I. Corporate capital structure before stock dividend.
C = Original capital.
S_1, S_2 and S_3 = Successive layers of earned surplus.
M_1, M_2 = Successive layers of market premium not recorded on corporate books.

II. Corporate capital structure after 25% stock dividend. Areas S_3, M_1 and M_2 have changed in form but not in size.

III. Position of investor before stock dividend. C, M_1 and S_1 were purchased. M_2, S_2 and S_3 accrued thereafter and were left unrecorded.

IV. Position of investor after receipt of 25% stock dividend. Book value D of stock dividend is recorded as income. Market premium M_1 paid for original shares is apportioned over both old and new shares.

V. Same as III.

VI. Position of investor after 25% stock dividend, if it is considered unnecessary to apportion original cost of market premium (M_1) over old and new shares. Entire market value ($D + M_2$) of dividend stock is considered income.

it now. In the case of the cash dividend the distribution is always considered a sufficient reason for recording income not accrued by the investor at the time the company earned it. On the subject of stock dividends, however, opinions differ. Some would recognize income in the primary form of corporate earnings, others in the secondary form of a distribution and still others in the tertiary form of a profit on sale. Under what was termed a logical hybrid method (see § 16), the receipt of stock dividends is considered a realization of income to the extent of their entire book value or that fraction which represents corporate earnings not hitherto recorded. This income may have to be adjusted further for changes in the level of the capital originally invested in the market premium.

Fig. 9 illustrates two possibilities for the treatment of stock dividends. Diagrams I and II show the corporation before and after a 25% stock dividend. The surplus layer S_3 was distributed, reducing the book value of a share from $200 to $160 and increasing the number of shares outstanding from 100 to 125 as already described. At the time when the investor purchased his 40 shares, the market premium amounted to $100 a share ($M_1$). If 25 additional shares are issued, that premium must be distributed over both old and new shares, so that the original premium after the stock dividend will be only $80 a share.

Passing now to diagram III, the stockholder's 40 shares may be analyzed. They were purchased for $225 a share, of which $125 was paid for the book value and the rest for the market premium. Since acquisition, the stock earned $75 a share which was left unrecorded. The distribution of a 25% stock dividend cuts $1,600 off the total book value of $40 \times \$200 = \$8{,}000$, and the same $1,600 (D) arrives in the mail in the form of a stock certificate for 10 shares. In addition to this the market premium of $4,000 originally paid for 40 shares must now be distributed over 50. Twenty dollars for each old share or a total of $800 passes to the 10 new shares, thereby establishing the market premium purchased at $80 for both old and new shares. (Diagram IV.)

If the accrual method was not followed, the earnings corresponding to the surplus layer S_2 and totalling $1,400 are still unrecorded, so that the value of the stock on the investor's books will be $8,200 for the 40 old shares and $2,400 for the 10 new shares. One thousand and six hundred dollars of the latter amount was charged to investments by credit to income. It may

be noted that the accrual method has the advantage of stating all shares at the same value, namely $240 a share. That method would accordingly have recorded an income of $3,000 either upon perusal of the financial statements or at the time the stock dividend was received and the investor's position examined. How the incomes measured and realized by other methods may be computed was indicated in the preceding chapter.

This first example of measuring income from stock dividends is based upon the theory that the additional purchase price or market premium of the 40 shares in excess of their book value was paid for 40% of the appreciation of corporate assets. Since 50 shares after the dividend likewise represent only a 40% equity, the premium per share is diluted accordingly. This is merely the orthodox principle that there can be no profit without a closed transaction, which is applied to the entire investment by the Federal income-tax method, but is limited to the market premium in Fig. 9, diagram IV, pursuant to the contention that the capital invested in book values may be measured more accurately by the corporate books. To determine whether it is reasonable to reduce the market premium per share in this manner, the nature of the equity purchased must be investigated. If the premium was invested in the unrealized appreciation of a corporate asset outside the productive unit or in the excess of liquidating value over the cost of the productive unit, then it is logical to adhere to this course of action. Such situations are, however, infrequent. In most cases good-will, or the excess of income-producing value over the cost of the productive unit is the value for which a premium was paid. If the company's earning rate has remained constant on an expanding capital, this good-will must have remained constant in its ratio to each dollar invested, unless the money rate changed materially. While the market premium M_1 increased gradually to $M_1 + M_2$ in not quite that ratio, a glance at the corporate diagrams shows that $M_1 + M_2$ after the stock dividend equal $100 a share just as M_1 alone did before it, so that it is reasonable to conclude that the new shares are worth the same premium in excess of their book value as the original shares were worth. Both M_1 and M_2 must, of course, be more trustworthy figures than mere market quotations; they are here introduced as representatives of the trend. Diagrams V and VI of Fig. 9 illustrate this contention, which is generally advanced by all companies distributing small periodic

stock dividends out of earnings currently accumulated. In addition to the income D realized in the first example, the market appreciation M_2 is now also realized. It is this second case, which is carried out consistently in Fig. 3 by showing the accrual method as a saw-like line starting at the point P. That line, of course, pictures not the entire investment of the stockholder in the company, but merely the evolution of a single share.

Fig. 10 presents two further possibilities for the investor's consideration. The stock dividend was large enough to return a portion of the investment in book values. The corporation distributing 60% in stock is shown in diagrams I and II, before and after that event, and the stockholder's position is illustrated in III and IV. Twenty five shares were originally purchased for $260 a share, of which $140 was paid for the book value and $120 for the market premium $M_1 + M_2$. Thereafter, the company earned $60 a share, whereas the 60% stock dividend reduces the book value by $75. In these circumstances the stock dividend of 15 shares gives the investor $1,500 of hitherto unrecorded income (D) and returns $375 of his original investment in book equities. Below the axis the market premium paid for 25 shares is apportioned over 40 shares, pursuant to the theory governing diagrams III and IV of Fig. 9. The value of the distribution was $75 per old share or $100 per new share on the corporate books, whereas the investor recorded a new value of $200 a share for all shares alike, one-half of the value of the dividend stock being derived from the original shares.

The fourth example of measuring stock dividends is concerned with the not infrequent situation, that the market premium originally paid was excessive, as determined by the subsequent behavior of market quotations and by reference to the computed long-term trend. The company's records and financial condition are assumed to be the same as in the third example. The stock was purchased at a premium of $M_1 + M_2$; of which M_1 shall now represent the difference between book value and the level of the trend and M_2 the excess of the market over the trend. By the time the stock dividend is declared, the market has declined below the trend, so that the stock can not be worth more than the book value plus M_1, even if we take a long-term view and do not expect to sell at the current price which is lower still. Diagrams V and VI of Fig. 10 picture this situation. Above the axis there is no change; 15 new

shares worth $1,875 on the corporate books are received as before; the value of the market premium has, however, declined to $50 instead of $75 a share and the difference cancels $1,000 of the income from the dividend. The income amounts to $500 only, instead of $1,500 as in the third example.

In all but the second of the four cases selected as fair samples of the considerations surrounding stock dividends, it was found necessary to reserve a portion of the proceeds to offset an encroachment upon the original investment. The reasons why this had to be done will lead to a formulation of conditions under which no return of capital can be involved. In Fig. 9 there can be no doubt that the dividend was made out of corporate earnings subsequent to the date when the stockholder acquired his holdings. This is often advanced as the only criterion having a bearing upon the nature of a stock dividend, yet according to diagram IV a sale would cause a liquidation of the original investment. Why? Because the investor invests not only in book equities, but often pays a higher price for his stock. Whatever market premium attached to the stock immediately before declaration of the stock dividend must be distributed over the new symbols of the same equity. Only if the increase of the market premium since acquisition can be verified as stable in terms of the trend, and if the rate of increase was higher than the rate of the stock dividend, may it be assumed that no portion of the premium originally purchased need be transferred to the new stock.

In Fig. 10 the dividend distributed by the company used up the surplus layer S_2 for which the investor had paid cash, so that there was a return of capital, although dividends were paid entirely out of corporate earnings. This is apt to happen, when a stock dividend is received soon after the holdings are acquired.

In order that companies making it a regular practice to distribute small stock dividends may advise their stockholders to treat the proceeds on the sale of additional stock as income, they must, first of all, earn more than the book value of the dividends distributed.[1] This requirement may be restated by saying that the earning rate on the entire book value of the common equity must be higher than the rate at which the number of shares outstanding

[1] Cf. Dividends Put to Work. The North American Co. New York, 1928. Also H. C. Freeman: Letters to Editor, *The Journal of Accountancy*, July, 1928 and April, 1930.

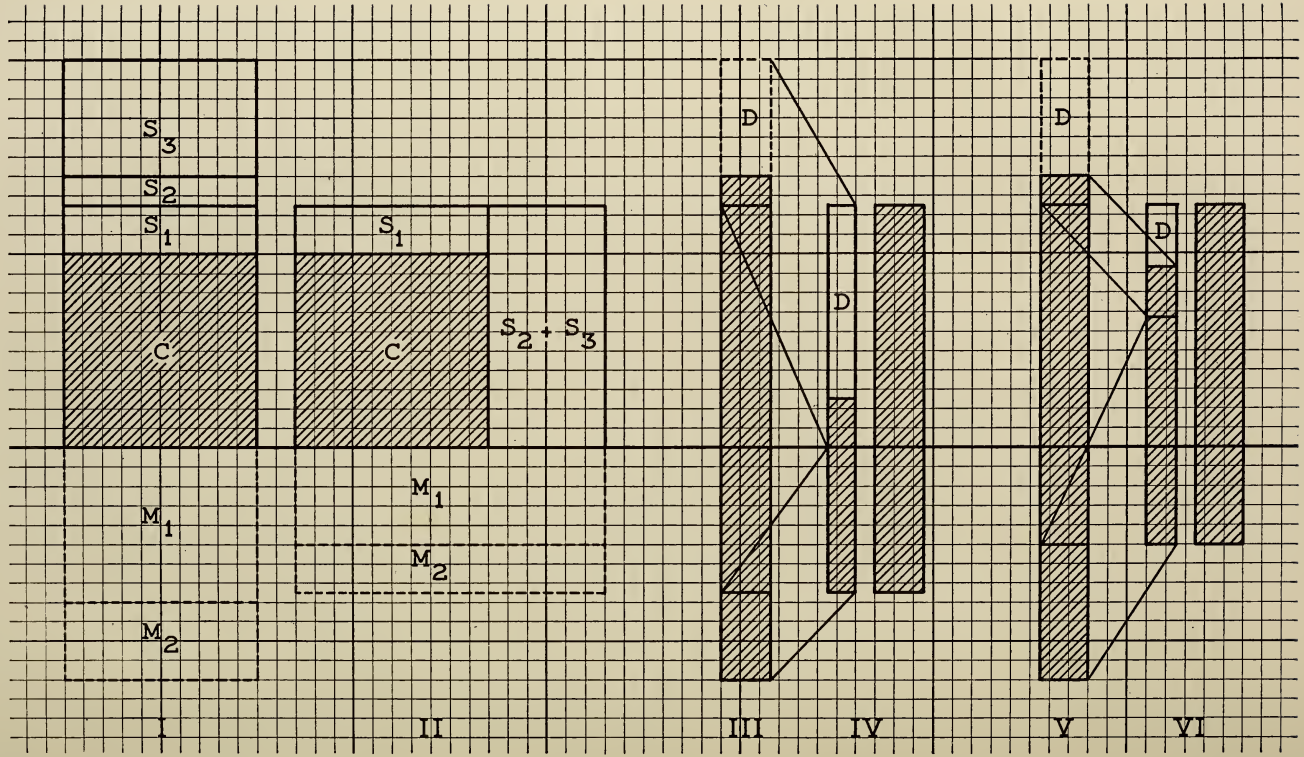

FIG. 10.—STOCK DIVIDENDS

One horizontal unit = ten shares.

One vertical unit = $10 per share.

The corporate book equities are shown above the axis and the market equities below it.

Investments shaded—earnings unshaded.

I. Corporate capital structure before stock dividend.
C = Original capital.
S_1, S_2 and S_3 = Successive layers of earned surplus.
M_1, M_2 = Successive layers of market premium not recorded on corporate books.

II. Corporate capital structure after 60% stock dividend. Areas S_2, S_3, M_1 and M_2 have changed in form but not in size.

III. Position of investor before stock dividend. Twenty-five shares were purchased @ $260, representing payment for S_1, C, M_1 and M_2.

IV. Position of investor after receipt of 60% stock dividend. The dividend returned $75 per old share, although unrecorded earnings thereon amounted to only $60. Market equity $M_1 + M_2$ originally purchased is apportioned over both old and new shares.

V. Same as III.

VI. Same as IV, except that market equity M_2, originally purchased, has now disappeared. Only M_1 is left to be apportioned over old and new shares. The resultant amortization of cost absorbs the greater part of the earnings D.

is increased by the stock dividend. What amount, if any, the company transfers from surplus to capital stock is immaterial so long as no attempt is made to compare earnings in dollars with the amount charged against earnings to represent the stock dividend. Conclusions based upon such a comparison may be branded as generally misleading, because the transfers are almost never adequate. (See § 28.)

For the sake of further emphasis upon the dangers courted by reliance upon corporate bookkeeping entries, a simple instance may be cited. Suppose that the par value of a company's capital stock is $50 and that a capital surplus of the same amount and an earned surplus of $100 attach to each share. If a 60% stock dividend is declared, the customary procedure is to transfer $50 per new share from earned surplus to capital stock to maintain the par value of all shares at $50. A stockholder who has watched the company's progress carefully knows that it earned $60 a share since he acquired his stock. Noting that the declaration of the stock dividend was recorded by the company in the way generally regarded as correct by a transfer of $750 for the 15 shares he received on his holdings of 25 shares, is it not natural for him to conclude that the difference between $60 × 25 = $1,500 and $750, or a net of $750, is the amount of his earnings left undistributed? In this conviction he may sell the 15 shares and be well pleased with the profit he made on a supposed cost of $750, without having the slightest idea that his capital was refunded at least to the extent of $375, if not more. These figures may be corroborated by an inspection of Fig. 10. The comparison of the earning rate with the dividend rate will prevent a similar error, provided both rates are computed upon the same base. In the instant case, $60/$140 = 42.9% can not be compared with the dividend rate of 60%. The proper comparison is $60/$200 = 30% with 60 sh/160 sh = 37.5%. The latter percentages applied to corporate book equities will correctly compute a value of $1,500 for the stockholder's earnings since acquisition of the 25 shares and a corporate book value of $1,875 for the stock dividend, or a return of capital in the amount of $375. Needless to say, $60/$200 is a very special form of earning rate, hardly worthy of the name, because it is not customary to compute the rate of earnings upon the capital including the same earnings. People speaking of a comparison of the dividend rate with the earning rate really mean a compari-

son of the quotient of new share over the sum of old and new shares with the quotient of earnings over the capital at the end (and not at the beginning) of the period. If the former is higher, the stockholder's investment in corporate book values must have been impaired. This rule is trustworthy, but it has a bearing only upon that part of the investor's capital which is invested in equities recorded on the corporate books. A simpler and quite as trustworthy way of noticing the impairment of the corporate book equity is that of comparing the successive book values of a share after each dividend. If at any time they drop below the original book value purchased, the dividend causing that drop has returned capital. The bookkeeping entries passed by the company upon declaration of stock dividends have no influence upon book values.

With respect to the investment in equities not recorded by the corporation it is much more difficult to formulate definite rules. The nature of the equity purchased must be examined. If it represents appreciation in the value of tangible assets, it may be considered a function of the proportionate interest in the total net worth; if, on the other hand, it represents good-will, it is apt to conform to the rule of proportionate increase presented in § 5 and further developed in the appendix. In that event, market equities will also be safe from dilution so long as corporate earnings exceed the book value of the dividend stock, and no reallocation of the original market premium is necessary.

No conclusions should be reached as to the effect of a stock dividend upon the book values or market equities purchased without consulting the long-term trend, which is the most valuable guide. If the purchase was made in a period of inflation, an adequate reserve should be set aside from the proceeds of each stock dividend, until the recorded value of a share is reduced below the trend. From that point on, the entire proceeds may be considered income, so long as this course of action does not raise the recorded level of the investment above the trend. The Federal income-tax method is a good method to use, when conservatism is imperative, as for instance during the depression years in Fig. 3.

When investors are asked to rely upon the company for guidance as to the extent of their income-realization, it is incumbent upon the company to maintain a corresponding dividend policy. In Fig. 3, for instance, it is evident that the distribution of stock dividends should have been discontinued in 1931 to serve notice

of the radical change in financial prospects and to prevent the decline of the trend. Only if the trend is never permitted to decline, is it possible to assure *all* stockholders (below the trend!) that the market value of all distributions may always be considered income.

Summarizing the conclusions it may be said that the following steps will help the investor to determine whether or not his capital was impaired through the sale of stock dividends:

1. Thorough analysis of the investment before purchase, to know what is being acquired.
2. Ascertaining whether the price paid is above or below the level of the trend.
3. Deciding upon the recording method to be used, to minimize profits or losses on the sale of the investment at the future date, when a sale may be expected.
4. Deciding upon the treatment of the market premium in the light of the trend, if such a decision is not already included in the choice of the recording method.
5. Consulting the company's published statements and comparing the book value of a share after the last dividend with its book values after preceding dividends to see whether earnings exceed distributions or not.
6. Disregarding corporate bookkeeping entries purporting to measure the value of stock dividends.

§ 30. The futility of classifying stock dividends.

Free distributions of additional shares to stockholders are commonly classified as occasional large stock dividends, regular small stock dividends and split-ups. This classification is held to be of vital import to the investor on the ground that he can not hope to treat dividend stock properly unless he knows what the corporate management intended to accomplish by the distribution. Large special stock dividends or " melons " are said to evidence an intention to adjust too wide a discrepancy between the stated value of the capital account and the actual capital investment, whereas small periodical stock dividends are declared for the purpose of distributing earnings currently accumulated. The split-up finally, is considered a device for reducing the value of the stock to a more desirable level to improve trading conditions in the market.

The conclusions often drawn from such a classification are that the "melon" and the split-up are not income, because the stockholder has merely received additional scraps of paper to represent the same equity as before the distribution. The small regular stock dividend, on the contrary, is income because the directors wish it to be income, although the quantity of additional scraps of paper received under exactly the same conditions is much smaller.

When receiving additional stock as a distribution, the investor is at once accurately informed of the following facts:

1. The rate of increase in the total number of shares outstanding;
2. The proportion of his total investment which would be liquidated by the sale of a share;
3. The price he can get for a share.

With some effort, he may in addition discover what the corporate book value of a share was before and after the distribution. None of these facts can be influenced by the circumstances surrounding the declaration of the distribution. They remain unchanged, whether or not that distribution was or ought to have been described as a split-up, an extraordinary stock dividend or a regular stock dividend out of current corporate income. The size or omission of a transfer from surplus to capital stock has no significance whatever. Human achievement is judged by results, not intentions! No matter what the directors intended to do, they have given the stockholder a certain number of shares representing a specific portion of the corporate net worth and salable for a specific sum.

The stock dividends in Figs. 9 and 10 are rather large because it was easier to picture them, but the conclusions are in no way affected by their size. To go further, diagram II of Fig. 9 could be replaced by diagram II of Fig. 13, illustrating a split-up and the conclusions would still remain the same. In a similar manner, a diagram might be prepared to represent a different split-up (reducing $100 par to $62.50) and be substituted for the corporate capital structure used in Fig. 10. To demonstrate even more conclusively that corporate pronouncements or bookkeeping entries have no bearing upon the matter, Fig. 11 shows the same company as Fig. 9 in various intermediate stages between a stock dividend

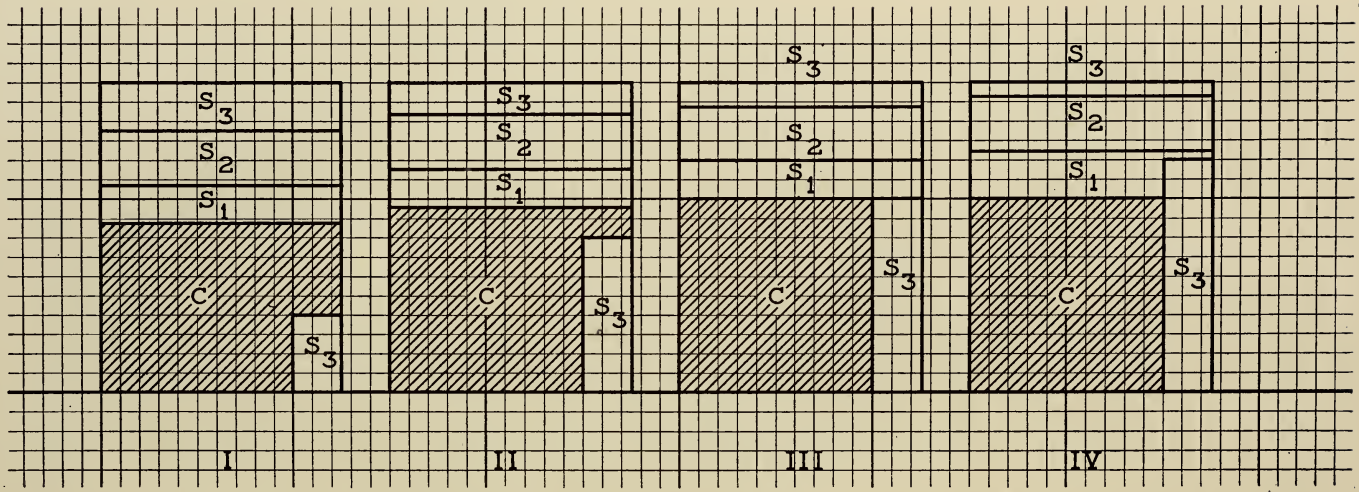

FIG. 11.—INTERMEDIATE STAGES BETWEEN A STOCK DIVIDEND AND A SPLIT-UP

One horizontal unit = ten shares.

One vertical unit = $10 per share.

The corporate book equities are shown above the axis. Market equities are omitted.

Investments shaded—earnings unshaded.

Corporate capital structure after:

I. A distribution of 25% in stock recorded by transferring $10 a share from surplus to capital stock.

II. Same distribution recorded by transferring $20 a share.

III. Same distribution recorded by transferring $25 a share.

IV. Same distribution recorded by transferring $30 a share.

and a split-up, depending upon whether the directors saw fit to transfer $1,000, $2,000, $2,500 or $3,000 from earned surplus to capital stock upon the distribution of 25% in stock. In each case, the amount stated on the balance-sheet as capital was $10,000. This amount may have been in one lump sum or divided into the stated value of the capital stock and the capital surplus. In the first diagram of Fig. 11 the stated value may have been $4,000 and the capital surplus $6,000; the surplus charge of $2,000 in the next diagram may have been inspired by a stated value of $8,000 and a capital surplus of $2,000 and so on. Any one of these diagrams can be used in lieu of the one representing the corporation in Fig. 9 (II). They are all similar in the respect that they substantiate a book value of $160 after the dividend, as against $200 before its declaration, and therefore they all prove that the distribution transferred $40 from each old share as a one-quarter contribution toward a new share. And since the surplus layer S_3 consisted of the last $40, increasing the book value of the stock from $160 to $200, a relapse to $160 indicates that it has been distributed, whether or not the corporate books disclose that fact.

It should be recognized, then, that the sale of stock received as a distribution liquidates the stockholder's recorded and unrecorded wealth to an extent which is not dependent upon the description or technical terms applied to that distribution nor upon corporate accounting procedure, but merely upon:

1. The rate of distribution;
2. The book value of the stock received;
3. Considerations affecting the investment in the market premium.

And if that be true upon sale, there is no reason why the same valuation should not apply at the date of distribution. There is no reason why identical goods should not be inventoried at their identical unit cost rather than at fictitious prices depending upon arbitrary trade names.

§ 31. Regulating the value of stock dividends.

There is no fundamental reason why the company should make any transfer whatever from surplus to capital stock, when additional shares are distributed. Such transfers were originally made in compliance with par-value statutes, which, perhaps, over-

looked the fact that earned surplus is capital to the same extent as the capital originally paid in and that therefore shares issued against surplus indicate the ownership of assets to the same extent as shares issued against an original contribution. It is more likely that the matter was not overlooked, but merely considered dangerous, because a cash dividend may easily represent the same layer of wealth as the stock dividend which preceded it. (See Fig. 13.) This is a regulatory point of view, which logically requires that the entire book value of the stock dividend be transferred from earned surplus to accounts so labeled, that any subsequent distribution from them may put the investor on notice that a refund of his original capital or of the earnings already recorded by him is taking place. The complaint is frequently heard that the transfer of par or stated value from surplus to capital stock is so small as to be meaningless. J. M. B. Hoxsey, an official of the New York Stock Exchange, says for instance:

> "As an illustration, take the case of an actual company, whose initial stock issue was sold for $100 a share in cash. One dollar per share was set up as capital and $99 per share as capital surplus. Let us suppose that this company earned $10 per share in the first year. That is 10% on the consideration received for the stock. Assume that this company wished to declare a 10% stock dividend. If the stock has been capitalized at the consideration received and if a charge were made against earnings on the basis of such capitalization, the first year's dividends would exhaust the first year's earnings. The same would be the case if each share issued should be charged against earnings at the sum of the capital and capital surplus theretofore existing. This would be a correct result. Ten per cent. has been earned upon the consideration received for the stock; ten per cent. in stock dividends has been paid. Nothing is left in earned surplus and no further dividends may be paid from earnings until a further sum has been earned. Assume, however, that instead of the procedure outlined, $1 per share issued, the amount of the stated capital per share, is charged against earnings and credited to capital. This would amount to a charge of 10 cents against earnings, for each share upon which such dividend is paid, leaving $9.90 in earned surplus out of each $10 originally earned. Thereafter, without any further earnings, if this method of accounting be correct, the corporation could go on for approximately 25¼ years, paying a ten per cent. stock dividend each year and stating that such dividend was

paid out of earned surplus. The result is, of course, absurd." [2]

It is here assumed that a similar example furnished the basis upon which the New York Stock Exchange reached the following official conclusion:

> "In the accounting for stock dividends upon the books of the issuing company, whether for stock with par value or without par value, capital and capital surplus should be regarded together as the consideration, other than earnings, represented by the stock. The sum per share of these two accounts is the minimum amount, per share to be issued as a stock dividend, which should be charged against earnings or earned surplus in order that such dividend may be termed a true earned stock dividend properly accounted for and in order that earned surplus may not include a fictitious amount available for further dividends without further earnings." [3]

This statement is correct only with respect to the specific example quoted, which unfortunately overlooks the fact that most corporations do not distribute their earned surplus to the last cent but endeavor to retain a substantial undistributed balance. As soon as such an earned surplus layer is introduced into the problem, the error becomes apparent. It is true that in the circumstances stated a 10% stock dividend distributes the 10% or $10 earned by a share, but 5% in stock will not distribute $5 as a 5% cash dividend would. The book value of a 5% stock dividend is $.05 \times \$110/1.05 = \$5.24$. A 5% cash dividend would have reduced the book value of a share to $105, whereas the 5% stock dividend reduced it to $110/1.05 or $104.76. If corporate bookkeeping entries are to be relied upon to safeguard the investor against mistaking the return of his capital for income when a subsequent dividend is declared or when dividend stock is sold, it will either be necessary to reduce earned surplus by $5.24 or to limit the recording of income upon receipt of stock dividends to the arbitrary value placed upon them by the issuing company.

The latter procedure is the one favored by the Exchange, as is shown by the following excerpts from its rulings:

[2] J. M. B. Hoxsey: Accounting for Investors. *Journal of Accountancy*, October, 1930. pp. 251–284.

[3] New York Stock Exchange: Report of the Special Committee on Stock Dividends, September 11, 1929.

> "The exchange will not decline to list, for the present at least, ordinary periodical stock dividends insufficiently charged against earnings or earned surplus, providing proper disclosure is made of the nature of such dividends." [4]

On the contrary:

> "The exchange will not knowingly list any of the securities of a corporation which takes up as income upon its books stock dividends received at a larger figure than the proportionate amount charged against earnings or earned surplus by the issuing company." [5]

In other words, instead of insisting that the issuing companies record their dividends in the manner which the Exchange considers proper, the investors are compelled to follow the company's error and to disregard the true value of the stock received.

The main thought prompting this decision was evidently that of establishing a correspondence between the earned surplus layer canceled by the company and that taken up as income by the stockholder. If the former had not canceled enough, the latter should not take up a greater amount than indicated by the company's action in order that he might not run the risk of recording the same layer of wealth for the second time as income. How this idea is carried out in practice may be seen in Fig. 12. In order to eliminate all unnecessary complications, it will be assumed that the stock was originally acquired at its book value of $125, before the surplus layers S_2 and S_3 had been earned. That makes diagrams IV to VII of Fig. 12 comparable with diagrams III to VI of Fig. 9, as far as the portions above the axis are concerned. In diagrams I to III of Fig. 12, the company is shown before and after the declaration of a 25% stock dividend, recorded in two ways by the transfer of $1,000 (II) and $2,500 (III) respectively from earned surplus to capital stock. According to the ruling an income (d_1 in diagram IV) of $400 is realized, if the company transfers $1,000. A layer equalling that amount, or $10 a share, is cut off the unrecorded earnings of the investor and increases his recorded wealth to a total of $5,400, represented by 50 shares, at $108 a share (V). The cost of each old share was reduced by $17 to make up the difference between the income re-

[4] Ibid.
[5] Ibid.

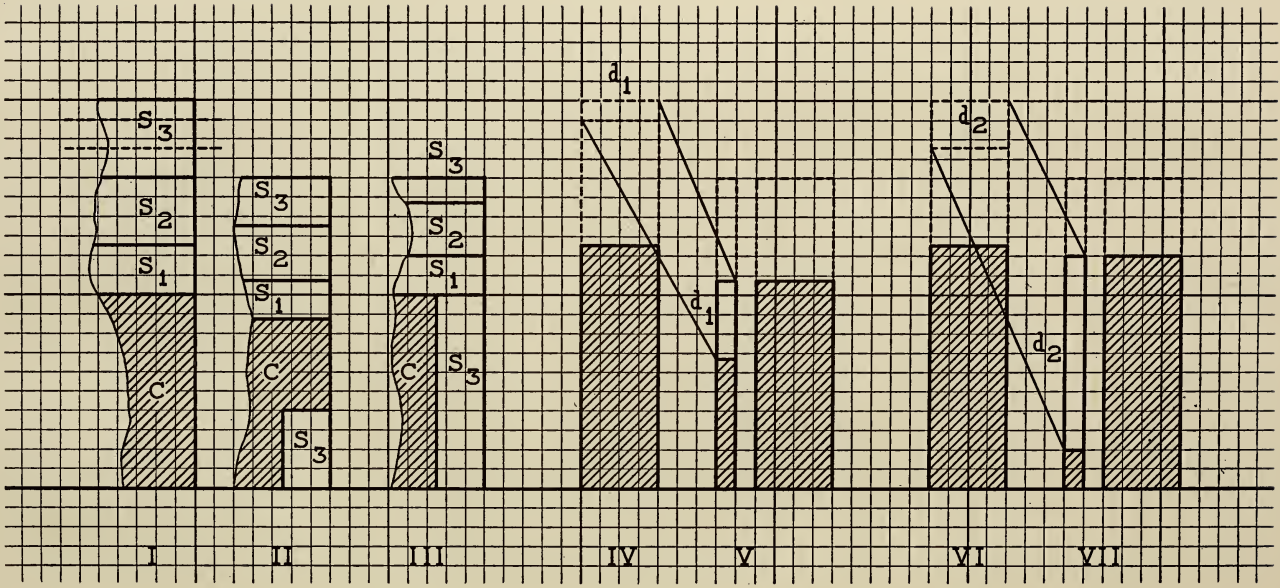

FIG. 12.—STOCK DIVIDENDS UNDER THE STOCK EXCHANGE RULE

One horizontal unit = ten shares.

One vertical unit = $10 per share.

The corporate book equities are shown above the axis. Market equities are omitted.

Investments shaded—earnings unshaded.

I. Corporate capital structure before stock dividend. Same as I of Fig. 9.

II. Corporate capital structure after 25% stock dividend. Same as I of Fig. 11.

III. Corporate capital structure after 25% stock dividend. Same as III of Fig. 11.

IV. Position of investor before stock dividend. Same as III of Fig. 9. (Market equity omitted.)

V. Position of investor after 25% stock dividend recorded in accordance with stock exchange rule limiting income realization to the layer of surplus canceled by issuing company. Corresponds to corporate action indicated in II, transferring $10 a share from surplus to capital stock (and capital surplus).

VI. Same as IV.

VII. Same as V, but corresponding to corporate action indicated in III, transferring $25 a share from surplus to capital stock (and capital surplus).

corded and the new average cost of 10 shares. It will be observed that the level of $108 corresponds exactly to the top of the rearranged surplus layer S_1, in diagram II in the same manner as the original cost of $125 corresponded to its former position (I). The earnings of the corporation after purchase of the stock amounted to $7,500 and the aliquot part of this sum accordingly represents income not previously recorded. The stock dividend canceled $1,000, so that $6,500, represented by the two surplus layers S_2 and S_3 in diagram II, is still available to the amount of $52 a share, which may be realized either through further dividends or by selling the stock at its new corporate book value of $160.

If the company transfers $2,500 (diagram III), which would be in accordance with the views of the Stock Exchange, $1,000 of income may be added to the original capital of $5,000, resulting in a new average value of $120 a share, which again corresponds to the top of the surplus layer S_1 in position III. Instead of $6,500 as before, the company now has only $5,000 available for distribution before encroaching upon S_1 and therefore upon the stockholder's original investment. Five-thousand dollars equal $40 a share, which may be realized immediately by selling the stock at $160 as before.

As a matter of practical expediency rather than accounting theory, the rule (hereinafter called the "arbitrary value" rule, see § 58) is quite valuable. It effectively prevents the duplication of income which might be caused by the automatic recording of two successive distributions based in part upon the same layer of wealth. This advantage, however, does not change the truth that the value of the stock received is not dependent in the least upon the figure arbitrarily charged to surplus by the issuing company. For this reason the rule is strongly reminiscent of paternal absolutism, which would rather do its subjects an injustice than permit them to use their own judgment, for fear they might make a mess of things if left to their own devices.

I am not familiar with the technical difficulties which may prevent the imposition of the equitable rule upon the issuing company, that it record its stock dividends by charging their entire book value to earned surplus as suggested in § 28. Such a measure would eliminate the injustice inherent in the rule now enforced against the investor, but retain its great regulatory advantages.

The immediate effect would be the removal of the old pressure compelling the sale of stock dividends, because listed companies holding the stocks of other companies would no longer need to resort to that expedient to realize the entire earnings distributed in stock. They would have the alternative of selling a less desirable investment to cover their cash requirements.

It must, however, be remembered that, after all, the necessity of transferring surplus to capital stock upon issuance of stock dividends is open to debate. It is necessary merely to carry out a specific regulatory theory designed to protect the stockholder. Companies are inclined to strike a compromise between their desires and that theory. Generally speaking, they do not want to transfer anything, but if they must, the amount will be as small as possible, especially if the subject can be obscured by an argument about the nature of no-par-value stock. A different theory of regulation, such as one based upon the maintenance of book values at a fixed par would avoid the difficulties described in this section. (See § 60.)

§ 32. Are split-ups income?

That the value of a split-up is the same as the value of a stock dividend of similar proportions has been demonstrated, but that does not necessarily mean that both must be treated in the same manner. To determine the criteria of income-realization is an inalienable individual right, and it is quite probable that many investors will wish to draw the line of demarkation so as to recognize the stock dividend and disregard the split-up as a source of income. There is a measure of justification for such an attitude, because the split-up is more apt to be followed by a duplicate distribution of the same layer of wealth than a stock dividend would be.

Let Fig. 13 (II) represent a 25% split-up and suppose that it is followed by a 40% cash dividend on the new par or stated value of $80 a share. The investor who bought 40 shares @ $260 at a time when the book value of a share was $160 can take his choice of considering either distribution as income, but not both. If he chooses the split-up, he will realize an increase (d_1) of $1,600 in the recorded value of his investment (III and IV), and when a like amount (d_2) is later handed to him in cash, that dividend will return $1,280 invested in the original 40 shares plus $320 of income

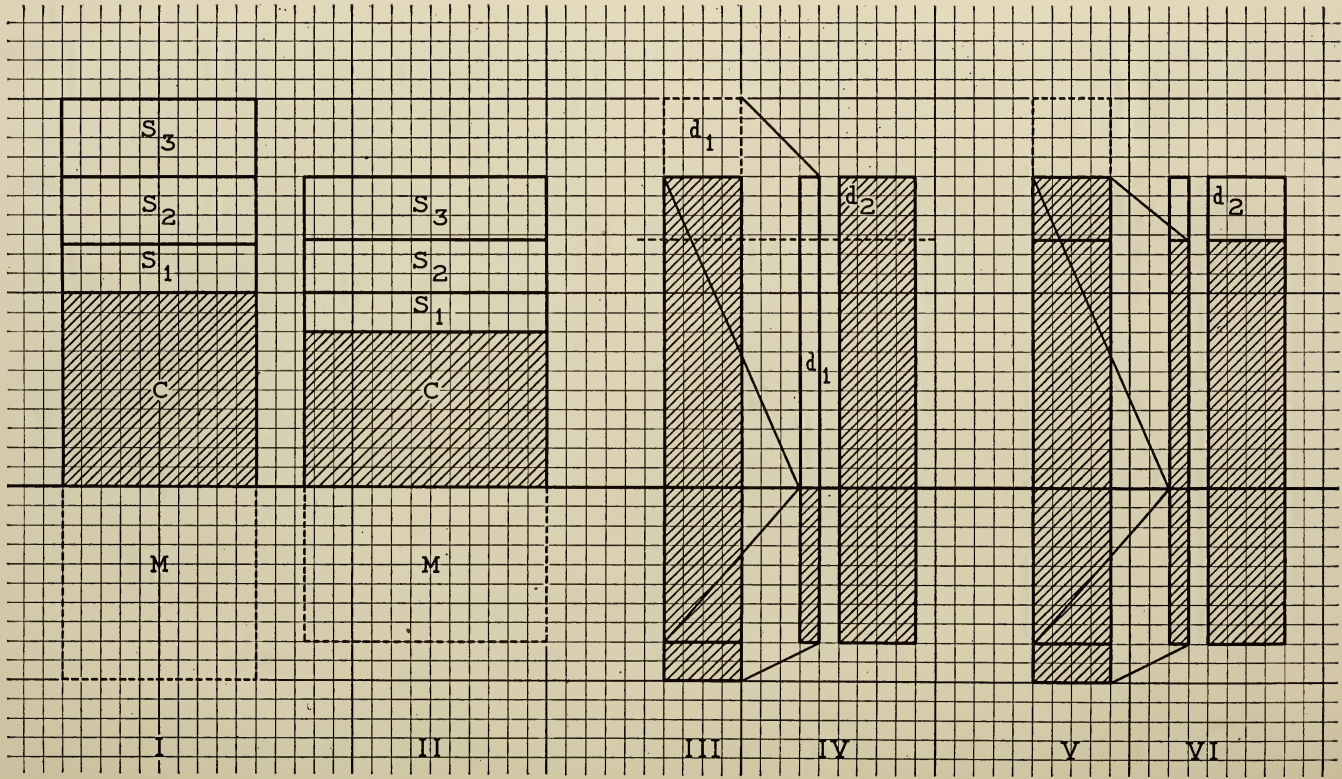

FIG. 13.—SPLIT-UPS CONSIDERED INCOME

One horizontal unit = ten shares.

One vertical unit = $10 per share.

The corporate book equities are shown above the axis and the market equities below it.

Investments shaded—earnings unshaded.

I. Corporate capital structure before split-up. (Same as I of Fig. 9.)

II. Same after 25% split-up.

III. Position of investor who bought 40 shares @ $260 paying cash for C, S_1, S_2 and M.
d_1 = Book value of split-up.

IV. Position of investor after recording 25% split-up as income. Earnings (d_1) unrecorded since purchase equal book value of new stock. Market equity is apportioned pro-rata over old and new stock. Horizontal dotted line shows what portions of investment would be cut off by a 40% cash dividend following the split-up.

V. Same as III.

VI. Position of investor who has omitted to realize income upon receipt of split-up. Earnings after purchase are left unrecorded and original investment in book as well as market equities is apportioned over old and new shares. Thereafter cash dividend (d_2) equal to unrecorded earnings since purchase is received. Diagram IV is thus equivalent to VI, except that cash dividend should be taken off both and shown separately.

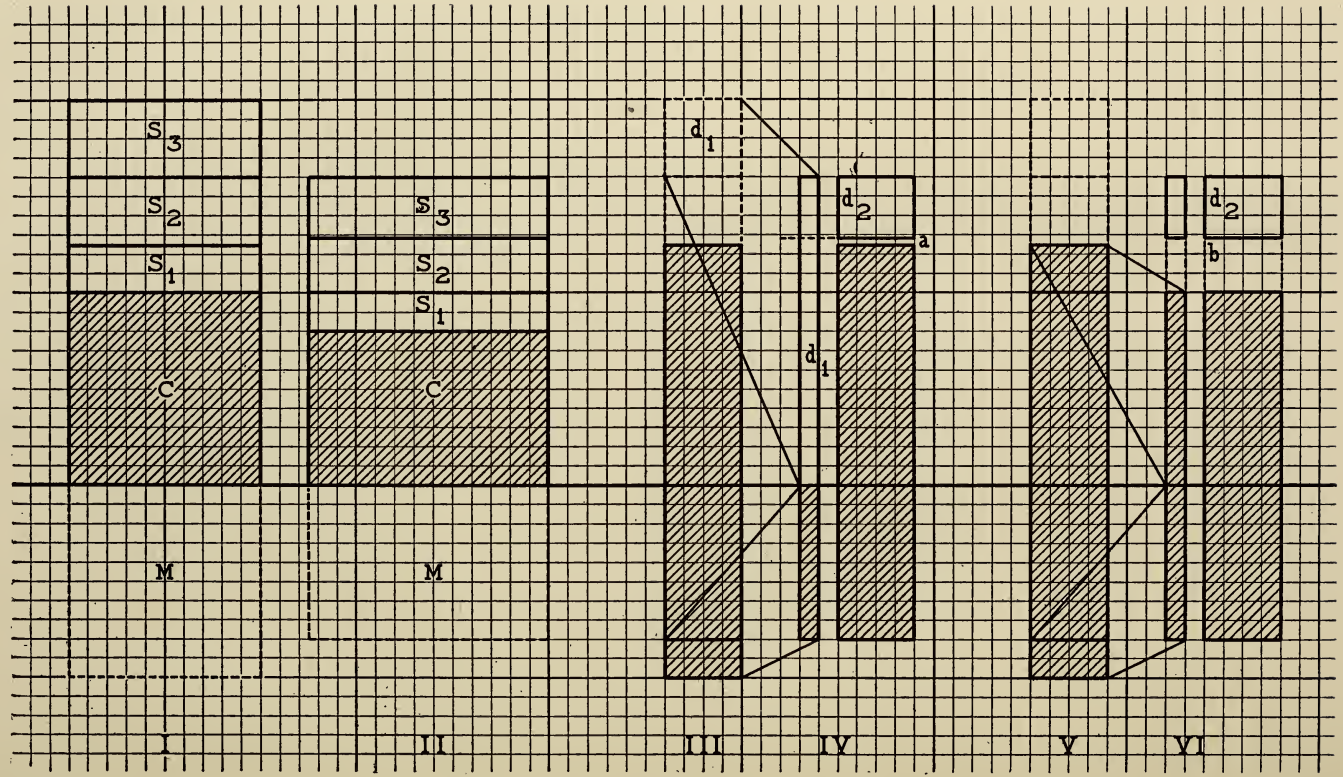

FIG. 14.—SPLIT-UP FOLLOWED BY A CASH DIVIDEND

One horizontal unit = ten shares.

One vertical unit = $10 per share.

The corporate book equities are shown above the axis and the market equities below it.

Investments shaded—earnings unshaded.

I. Corporate capital structure before split-up. (Same as I of Fig. 13.)

II. Same after 25% split-up. (Same as II of Fig. 13.)

III. Position of investor before split-up. Purchase price included S_1 and M, but not S_2 as in Fig. 13. (Same as III of Fig. 9.) d_1 = book value of split-up.

IV. Position of investor after 25% split-up. Book and market equities are apportioned to new stock as in IV of Fig. 9. Thereafter a cash dividend d_2 = $32 a share is received. This cash dividend represents $320 already recorded in the value of the new stock and $1,280 of hitherto unrecorded earnings subsequent to purchase of the original 40 shares. A small layer (a) of $3 per old share is left unrecorded.

V. Same as III.

VI. Position of investor who has omitted to realize income upon receipt of the 25% split-up. The book and market equities originally purchased are apportioned as in VI of Fig. 13. The cash dividend d_2 is then received and may be considered income in its entirety. A layer (b) of earnings since acquisition still remains unrecorded.

already recorded upon receipt of the ten share split-up. On the other hand, he may be impressed by the warnings and exhortations of various writers on the subject and shrink from an act tantamount to heresy.[6] In that case he will merely split his shares as he was told to do (diagrams V and VI) and will realize the subsequent $1,600 cash dividend ($d_2$) as his income. The 10 shares received in the split-up might also be sold before or after the receipt of the cash dividend. Disregarding the unknown profit or loss on sale in the daily market, the stockholder's total capital will in any event amount to $12,000, of which $10,400 was the original investment and $1,600 the income thereon. What portion of the $12,000 is in stock or in cash will depend upon the steps taken. The answer is simple, because Fig. 13 conveniently assumes that the stock was originally purchased at the time when its book value was $160, so that the cash dividend duplicates the split-up exactly.

Fig. 14 will answer the question of what would have happened if the book value at the time of acquisition had been $125. In such circumstances, the accrual method would have recorded the same $12,000, divided into an original capital of $9,000 and an income of $3,000, but the answer obtained by other methods would have differed. If the split-up was taken up as $1,600 of income ($d_1$), the subsequent cash dividend (d_2) of $32 a share would have consisted of $1,280 income on the 40 original shares and a cashing of $320 of the $1,600 income already recorded upon receipt of the 10 shares. An unrecorded surplus layer (a) of $120 would have remained atop the original 40 share lot, corresponding to a recorded capital level of only $11,880. Even more conservative would have been the result obtained by an investor who does not acknowledge the receipt of a split-up as a reason for recording income (diagrams V and VI). His records after the cash dividend (d_2) would indicate a total capital of only $10,600, which could be increased to $10,880, plus or minus the unknown profit or loss on the sale, by selling the 10 shares, which are still unrecorded to the extent of $280 (b).

The last result should not be hailed as proof of the contention that a split-up may not be used as a means of realizing income, because, after all, the corporation has earned an amount equivalent to $3,000 on the 40 shares since their acquisition, so that, unless

[6] Cf. C. B. Reeves: Stock Devices Explained. *New York Evening Post,* January 17–24, 1931.

market developments call for an amortization of the premium paid, the stockholder may safely value his total wealth at $12,000, without being less conservative than at the time of purchase. As shown in diagram VI of Fig. 9 even a reallocation of the market premium per share which was made in Figs. 13 and 14 might have been omitted under certain conditions.

It should be apparent from the foregoing, that there is no difference between a split-up and a stock dividend except in point of corporate bookkeeping routine, with which the stockholder need not be concerned, so long as he keeps a watchful eye on the changes in the book value of a share. This conclusion amounts to an endorsement of the accrual principle, whether or not it may lead to a practical adoption of the accrual method of recording income. One may ask why the definitions of " stock dividend " and " split-up " should not be governed by the investor. The receipt of stock representing hitherto unrecorded income would constitute a stock dividend and the return of original capital or of income already recorded in a reinvested form would be a split-up. In this way the distinction between the two would be acknowledged to be a matter of individual opinion and record, which is all it really appears to be. Whether it shall be permissible to differentiate between the stock dividend and the split-up upon the corporate books will depend upon the regulatory attitude adopted for the safeguarding of the stockholders. If a plan is selected under which each distribution must be recorded by the company at the full amount of its book value, only one kind of distribution in stock can be recognized, in the absence of a par or stated value in excess of a legal minimum. Even the recognition of the split-up of par values is, strictly speaking, illogical, unless book values are stabilized at par (see § 60), because only in that event would par cease to be a meaningless concept.

CHAPTER V

STOCK DIVIDENDS

(Continued)

§ 33. Optional dividends.

Optional dividends furnish an excellent opportunity for contrasting distributions of property with those of equity, to determine to what extent one may be substituted for the other.

The fundamental characteristic of all distributions conforming to the preëmptive right of the stockholder is that, so long as they remain unaffected by outside considerations, they will not change his total wealth. Distributions of property (including cash and evidences of indebtedness) will, however, reduce the stockholder's investment in the company by giving him some other form of invested or uninvested wealth, whereas distributions of equity leave his residual interest in it unchanged.

The usual option given to stockholders is that of choosing between a specific amount of cash and a certain fraction of a share. The very fact that a choice is offered is presumptive evidence that the company considers one the equivalent of the other. If market considerations or the shortage of cash are not allowed to influence the computation, the company's problem is simple. To it, cash and stock are worth neither more nor less than their book values after the dividend.

Optional dividends of early days invite the suspicion that the management issuing them may have had no clear conception of this principle of parity. The Philadelphia and Reading Railroad, for instance, issued seven optional dividends from 1863 to 1869, stating simply that a dividend of so many per cent had been declared, payable either in cash or in stock at the option of the stockholder.[1] Although the company's balance sheets for that period are not available, it seems a safe conjecture that, barring miracles, the value of an equal percentage on par value and new book value

[1] S. O. Sargent: The Rule in Minot's Case. G. P. Putnam's Sons, New York. 1871.

respectively could not possibly have been the same, nor could the discrepancy have consisted of a deliberately computed differential or premium designed to make one or the other alternative more attractive. Again it is highly improbable that the cash offered could have equalled the market value of the stock in each of the seven instances. There is nothing left but to assume that the directors thought the alternate forms were equivalent.

If an optional dividend is to be declared in its simplest form, all that has to be done is to determine the value of the distribution proposed in dollars as if it were a cash dividend; then to compute the ratio of that distribution to the new book value of a share after it, and the result governs the alternative distribution in stock. For instance, a company having a net worth of $200 a share wishes to distribute $40 of it in cash or stock at the option of the beneficiary; $40/$160 = 25%, or one for every four shares held is the rate of the equivalent stock dividend.

The complications caused by optional dividends will become apparent upon examination of Figs. 15 and 16. Whenever the stock was acquired at a premium above book value, the excess investment is affected by a curious shift, which reduces the value of the cash dividend and enhances the value of the stock dividend. In Fig. 15 a company is presented, which has declared an optional dividend of 25% in stock or $40 a share in cash. Two-fifths of the stockholders have taken the stock and three-fifths the cash so that the company has paid out $2,400 in cash and issued 10 additional shares having a book value of $160 a share. The correct charge to earned surplus is correspondingly $4,000 (see § 28) which it would have been in any event, no matter what the stockholders had chosen. Diagrams III and IV of Fig. 15 closely resemble II and III of Fig. 6 used for the discussion of the cash dividend, whereas diagrams V and VI are copies of Fig. 9 (III and IV). The shares of both stockholders were purchased at a book value of $125 and a market premium M_1 of $100. The dividend, whether in stock or in cash cuts $1,600 off their hitherto unrecorded income, and a cheque for that amount or a certificate for 10 shares of stock arrives in the mail. The first thing to note is that the stock dividend derives an additional value from the reallocation of the market premium which is changed from the original $40 \times \$100$ to $50 \times \$80$. Further inspection will reveal that although both diagrams IV and VI correctly reflect conditions

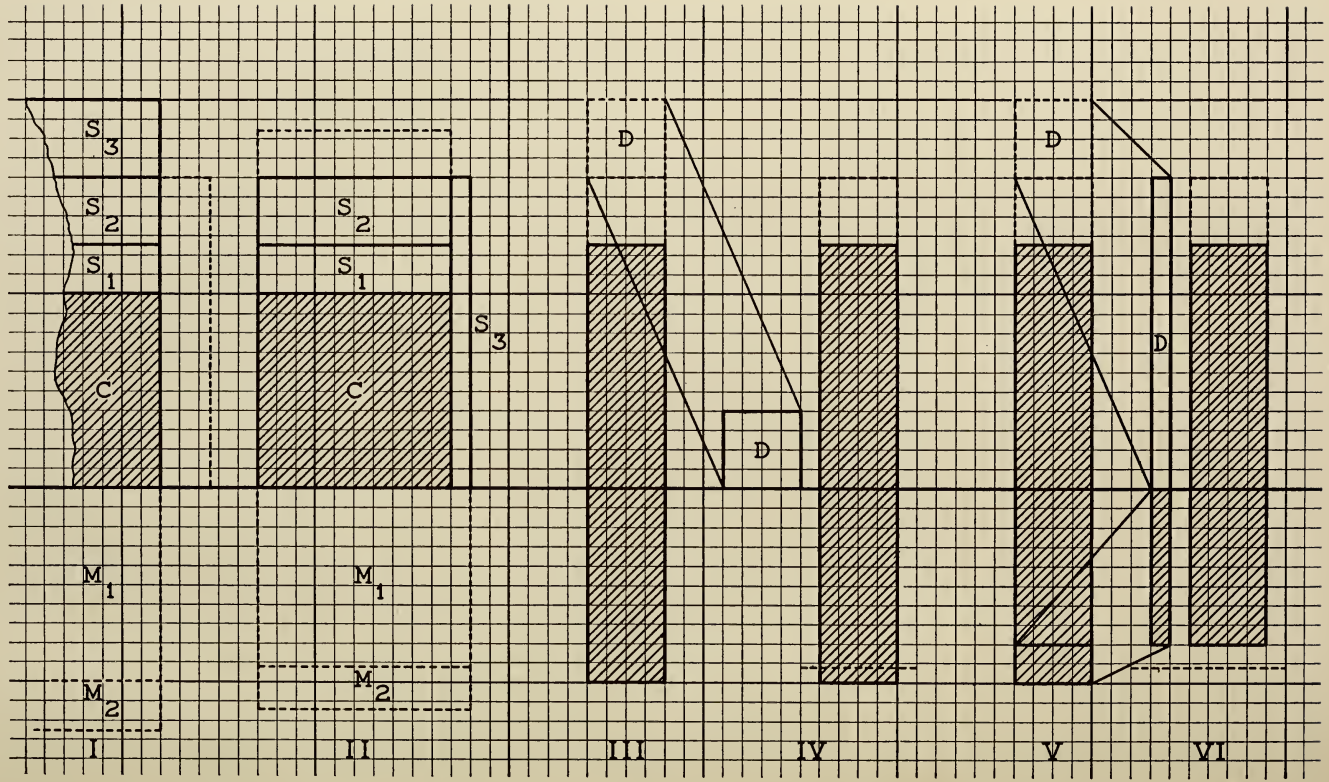

FIG. 15.—OPTIONAL DIVIDENDS

One horizontal unit = ten shares.

One vertical unit = $10 per share.

The corporate book equities are shown above the axis and the market equities below it.

Investments shaded—earnings unshaded.

I. Corporate capital structure before optional dividend. (Same as I of Fig. 9.) Dotted parallelogram above axis shows new position of surplus layer S_3 after 25% stock dividend.

II. Corporate capital structure after optional dividend resulting in distribution of 10 shares and $2,500 in cash.

III. Position of investor before dividend. (Same as III of Fig. 9.)

IV. Receipt of cash dividend of $40 a share by optant for cash. (Analogous to III of Fig. 6.)

V. Same as III.

VI. Receipt of 25% stock dividend by optant for stock. (Same as IV of Fig. 9.)

It should be noted that, although copied from preceding cash and stock dividend diagrams, neither IV nor VI are correct representations of the investor's position after the optional dividend, because market equities require different treatment. Compare level of M_1 in II, extended to IV and VI.

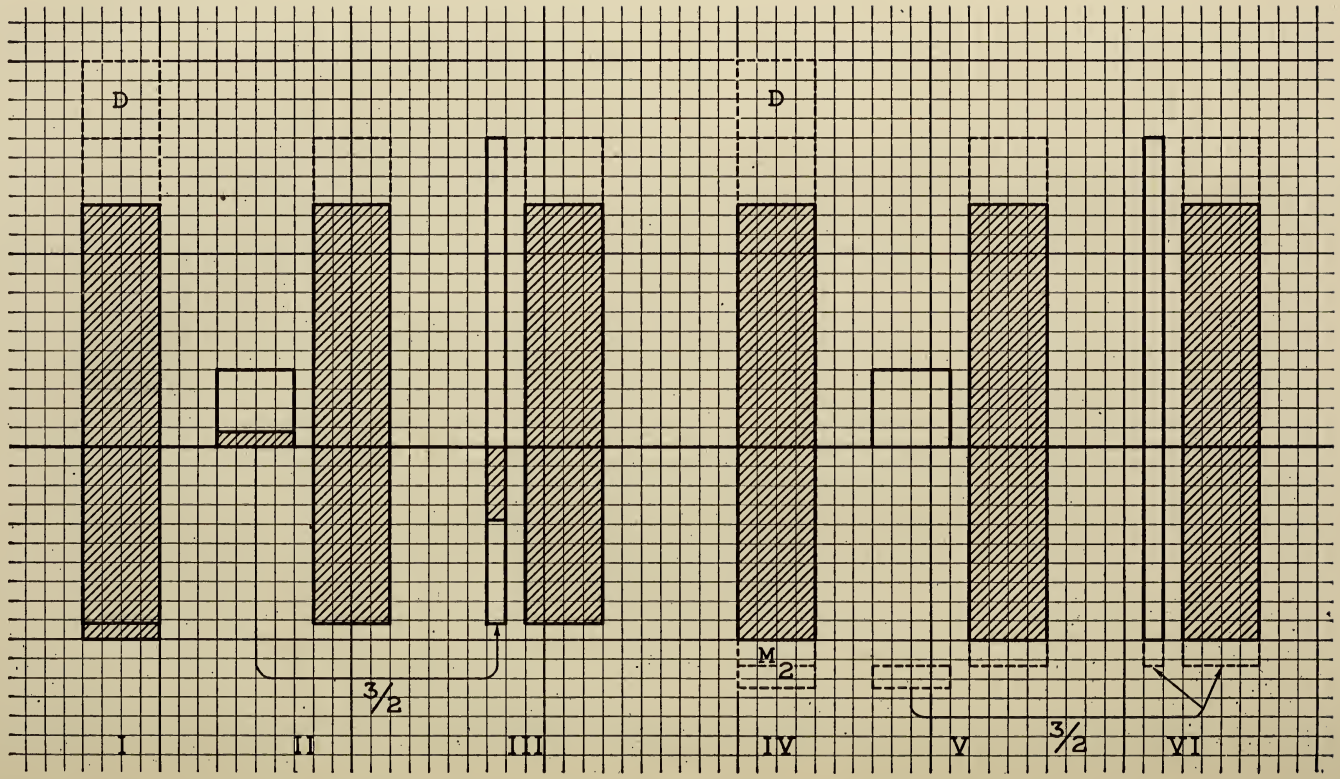

FIG. 16.—OPTIONAL DIVIDENDS

One horizontal unit = ten shares.

One vertical unit = $10 per share.

The corporate book equities are shown above the axis and the market equities below it.

Investments shaded—earnings unshaded.

I. Investor's position before dividend. (Same as III of Fig. 15.)

II. Position of investor after choosing the cash dividend. (IV of Fig. 15 corrected.)

III. Position of investor after choosing the stock dividend. (VI of Fig. 15 corrected.)

IV. Same as I, but showing market equity M_2 accrued subsequent to purchase. (See I of Fig. 15.)

V. Same as II, with realization of M_2 as income.

VI. Same as III, with realization of M_2 as income.

obtaining when outright cash or stock dividends are declared, neither of them corresponds to the diagram (II) of the corporation after the optional dividend. The market premium M_1 of $100 a share has shrunk, not to $80, but only to $90.91. Tracing this level to the right, the capital of the investor who elected to receive cash appears to be overstated by $40 \times \$9.09 = \$363.64$, whereas the capital of the one receiving the stock looks over-amortized by $50 \times \$10.91 = \$545.45$. Diagrams II and III of Fig. 16 explain this discrepancy by pointing out that the cash dividend of $1,600 must be reduced by a loss of capital amounting to $363.64, which is in effect transferred to the credit of the optant for the stock dividend. Bearing in mind the ratio of $\frac{3}{5} \div \frac{2}{5}$, in which the stockholders' preferences were split, $\frac{3}{2} \times \$363.64 = \$545.45$ balances the transaction. The amount of the transfer will depend upon the rate of the preference expressed and upon the respective premiums purchased by each stockholder.

The reason for the shifting of market equities in favor of the stock dividend is that such equities can attach to stock only. The investor choosing cash has reduced his proportionate interest in the company, whereas his fellow-investor has increased it by receiving more shares than his proportion of the entire issue.

Diagrams V and VI of Fig. 16 assume that the market premium M_1, having originally been paid for good-will, increased, if not in proportion to the dollars invested, at least at a rate equal to that of the stock dividend. For this reason M_2 is considered realized either immediately upon receipt or upon sale. The man who chose the cash dividend loses $40 \times \$11.36 = \$454.55$ of unrecorded additional market premium, $\frac{3}{2}$ of which ($681.82) accrues to his fellow who took stock instead. Thus the reader is confronted with the apparent paradox that of two investors holding 40 shares each in the same company, one realized $1,600 and the other $2,736.36 of income in cash and yet the values of their respective 40 shares after the dividend are again exactly the same. The figures, however, add up correctly. Before the dividend each investor had:

Original investment	$9,000	
Unrecorded corporate earnings	3,000	
Unrecorded increase in market premium	1,000	$13,000

With the declaration of the dividend $11.36 of unrecorded market premium was taken away from each of the 60 shares voting in favor of cash and placed in a pool from which the remaining 40 shares drew $17.04 each or $681.82 altogether. The positions of the two investors therefore compare as follows:

Equity before cash dividend	$13,000.00	
Loss by transfer	454.54	$12,545.46
Equity before stock dividend	$13,000.00	
Profit by transfer	681.82	13,681.82
Difference:		
Cash dividend	1,600.00	
Stock dividend	2,736.36	$ 1,136.36

The total amount of the transfer will not be affected by differences in the date and price of acquisition, because on the date of the dividend the same amount of wealth is invested in each share no matter by whom held or how acquired. All that will differ is the portion of the total transfer, which affects the recorded wealth. That will be a matter to be computed individually by each stockholder in accordance with the recording method favored by him.

When stocks are bought at a premium and can be sold at a premium, an option at par will always favor the investor who chooses the stock. This will happen without cost to the company so that there will be no need for increasing the book value of the stock above the amount of the cash alternative to provide an incentive. If market prices are very high, the value of the stock dividend can even be cut considerably below its cash equivalent computed at book values. In that event the company will realize a capital surplus which results in a book profit for those who chose cash, and offsets in part their losses in market equities.

The subject of optional dividends has many ramifications to which justice can not be done within the scope of this treatise. Familiarity with the method of preparing the diagrams presented will, however, enable investors to decide which alternative is more favorable under a given set of conditions.

From the regulatory viewpoint the necessity of declaring optional dividends may be doubted, because all legitimate purposes of management can be achieved by simpler means. (See § 63.)

§ 34. Charging stock dividends against capital surplus or reserves.

As it does not matter fundamentally, whether or not the company makes any transfer entry upon the issuance of stock dividends (see § 31), neither will it matter to which of the capital accounts it elects to charge an amount purporting to represent their value. Such an action, it is said, specifies the source from which they were derived. In the light of the conclusions already reached (see § 30) it is unnecessary to consider the contention that the source has any bearing upon their value, but the justification of claiming a specific source may well be examined.

From a regulatory point of view the source of any dividend is that surplus layer, the accumulation of which made the distribution possible or desirable. All dividends therefore always apply against the latest layer. The only complication introduced is that there are other forms of capital increment besides operating profits accruing to a company and that it is advisable to keep them separate from operating results. It will depend upon the nature and method of accumulation of a capital surplus whether a dividend may be charged against it in preference to the top layer of earned surplus. The matching surplus (see § 28) should be distributed only pro-rata with the older surplus layers which it matches, after all more recent accumulations accruing jointly to the old and new stock are exhausted. The charging of stock dividends against an initial paid-in surplus is misleading. Such an action creates the impression that certain regulatory principles designed to protect the investor have been followed, when in reality that is not the case. The earned surplus account could as well be preserved in its original amount by defying the regulation openly and refusing to pass any entries upon the declaration of stock dividends. (See § 60.) That would at least put the stockholder on notice that the only way in which he can effectively protect himself against the impairment of his capital is by proceeding to analyze the situation in the manner suggested, without depending upon the company to do it for him.

Dividends charged against an appraisal surplus, while contrary to standard accounting procedure, need cause no special concern to the stockholder who has acquired the stock before the appraisal. If there are unrecorded earnings, the book value of the

dividend may still be considered income to the extent of those earnings. The chances of making an error are much greater at the time when the appraisal surplus is placed on the books. If the investor does not wish to disregard the appraisal equity whenever he examines the corporate balance sheet, he may transfer a corresponding portion of his market equity to the book equity by pushing up the bar representing his holdings in the diagram. The corporation really did the same thing; it placed a portion of the stock's market equity upon the books. The charging of dividends against an appraisal surplus is, however, a most pernicious practice, because the disappearance of that surplus relegates the fact of the appraisal into oblivion.

Charging dividends against appropriated surplus is not particularly offensive, but it is more logical to close out the reserves which have served their purpose and record the distribution in the manner conforming to regulatory principles. (See chapter VIII.)

Dividends declared through the impairment of valuation accounts (such as reserves for depreciation and bad debts) or expense reserves (such as those for taxes, insurance, etc.) may lead to error, if the investor fails to recognize the significance of two separate transactions combined into one. An adjustment of reserves may amount either to an adjustment of earnings or to an appraisal of assets. The former will create an increase in earned surplus and the latter an appraisal surplus. If the former is justified, the earnings not recorded by the stockholder are correspondingly increased and the book value of a dividend received may again be applied against them by way of realization of those earnings. If the significance of the adjustment is that of an appraisal, the simultaneous setting up and closing out of the appraisal surplus call for the steps already described.

§ 35. Stock dividends in cases of extreme appreciation.

An instructive situation having a bearing upon the practice of setting up appraisal surpluses on the corporate books arises when a speculative venture succeeds beyond reasonable expectation. In one instance, about $100,000 was invested in a piece of land and its exploration, with the result that the company almost overnight found itself in possession of an oil field worth $4,000,000. A share having a book value of $100 was quoted at $4,200 after its

earnings amounted to $200 during the first year. The books of the company at the end of the year showed a capital of $100,000 and a surplus of $200,000, which is practically meaningless. The question which suggests itself is, whether stock dividends issued call for special treatment in such an extreme case. The New York Stock Exchange believes that they do and it accordingly ruled as follows:

> "In cases where there exist substantial uncapitalized assets, tangible or intangible, the amount of the charge against earnings or earned surplus should be larger than this minimum amount" (*i.e.* the sum of capital and capital surplus per share).[2]

Although it is not explained what the correct charge would be, the rule evidently amounts to a proposal of computing the value of a stock dividend in the same manner as if the uncapitalized asset were placed upon the books by credit to capital surplus. Such a procedure would greatly reduce the number of shares which could be charged against earnings and prevent the cashing by the investor of the overnight appreciation through the sale of dividend shares.

As the books stand, a 200% stock dividend would distribute the entire earnings. The book value of a share was $300 before the dividend and becomes $100 after it. The market value, on the other hand, is reduced from $4,200 to $1,400. By selling the two dividend shares, the stockholder receives $2,800 of which $200 is earnings and the rest appreciation. His original share, however, is still worth $1,400, although its cost was only $100.

By placing an appraisal surplus of $3,900,000 upon the books, the rate of the stock dividend distributing the entire earnings would be cut from 200% to 5% and the sale of one-twentieth of a share will yield

$$.05 \times \frac{4200}{1.05} = \$200$$

In this manner the entire appreciation of capital is preserved intact, as it is still vested in the original share. While this may be desirable in the instant case, it is difficult to find the exact dividing line between "substantial" and unsubstantial "uncapitalized assets." No company's book value equals its market value. How great

[2] Report of the Special Committee on Stock Dividends, September 11, 1929.

may the market premium become, before the rule reprinted in § 31 must be abandoned in favor of the one just quoted?

This thought, coupled with the desire to prevent the cashing of unearned capital increments in every instance, might well lead to a generalization of the principle and a rule compelling every issuing company to change the entire market value of its stock dividends to earned surplus. The arbitrary rule that the recipient's income is measured by the company's recording entry would then no longer discriminate against stock dividends but place them on a par with distributions of stock in other companions. Such a consummation seems highly desirable, because it promises to make the income-value of a stock dividend equal to its selling price, thereby preventing misunderstandings and errors without number.

The advantages of such a "market value" theory of regulation disappear when it is realized that time must elapse between the declaration, distribution and sale of a stock dividend. The market value at the date of sale will most likely differ from that at the date of declaration. The latter value would accordingly govern the transaction and an adjustment of the cost of old shares would have to be made in the same manner as in the case of any other arbitrary valuation placed upon the dividend stock by the issuing company (see § 31 and Fig. 12). It is true that the proportionate income-realization would be quite substantial, but that advantage would be offset by a disinclination of the company to declare stock dividends commensurate with reinvested earnings. (For a comparison of the various theories of regulation see chapter VIII.)

By clinging strictly to the theory advocated throughout this book, that the purchase of stock represents two separate investments, all problems can be solved, no matter how extreme a situation may be. Let the company measure only what happens to the investment in book equities and let the investor analyze the market and the economic factors underlying its changes, to determine what happened to the investment in the market premium. On the other hand, extreme cases might well be taken out of that indefinite category by placing conservative discovery or appraisal values upon the books.[3] The investor would merely have to follow the suggestion of § 34.

[3] Cf. Federal Income Tax Regulations 77, Art. 223 and 234.

§ 36. Bonus shares.

Bonus stock issued as an inducement to purchase senior securities is a departure from the principle of the preëmptive right of stockholders. It is described by J. R. Wildman as follows:

> "No-par shares are extremely useful for distribution as a bonus with other shares. Par stock may not be used as a bonus without resorting to subterfuge, which often is a good deal of nuisance. Changing the stock to no par removes the necessity for subterfuge, and, by offering such stock as a bonus, the corporation might be enabled to dispose of its preferred shares at a reasonable dividend rate." [4]

As a selling argument bonus stock is probably effective enough, but mention must be made of the fact that the old stockholders are being deprived of their equity to the extent of the value of the bonus shares. The situation is illustrated by the stock dividend diagrams, Figs. 9 and 10; all that should be kept in mind is that the new stock does not go to the old stockholders, but to an outside group. The issue of 25 shares as an inducement to purchase bonds thus costs $40 per old share in book value alone, not to speak of the corresponding dilution of market equities described in § 29. The declared value of the bonus stock and corporate bookkeeping entries may obscure the truth, but they can not change it. Whether the cost of the additional capital thus obtained is really reasonable should be investigated before bonuses are distributed.

§ 37. The reduction of capital stock.

Capital stock is usually reduced as an acknowledgment of the fact that a portion of the permanent capital has been dissipated and is now given up as lost. Such a reduction amounts to a reorganization of the company on a smaller scale and is warranted whenever conditions have so changed that a fresh start may be expected. It consists of the return of a certain proportion of the total outstanding shares to the company for cancellation, and transfers the credit so liberated from capital stock to the deficit account, converting the latter into surplus. The reduction of capital is indicated especially if a corporation having a large deficit changes hands through the purchase of the outstanding stock at a

[4] Capital Stock Without Par Value. A. W. Shaw & Co. New York, 1928.

discount. In one such instance the new owners carried on with success for nine years and yet never thought of reorganizing the company to eliminate a deficit of more than one-half of the capital stock, although it was acquired with the business and not of their own making at all. The humorous explanation in this case was, that the owners felt they would work harder, having a red figure to attack, and moreover it prevented the spending of their profits, which they would otherwise have declared in dividends.

The reduction of capital stock is the opposite of the stock dividend. It increases surplus, but does not increase net worth. The book value per share increases, the equity formerly symbolized by the retired certificates being divided among those remaining. The equity of the stockholder in the company remains the same as it was immediately before the transaction.

In practice, such a step is taken generally to adjust capitilization having a par value. For no-par-value stock it can have a meaning only in its effect upon the market value. The reverse of a split-up could also be imagined in the form of a " fold-up," which may have been employed at one time or another.

The reduction of the number of shares outstanding is now seldom resorted to, because modern methods enable the corporate management to break the sad news so gently that the old-fashioned investor who is not always watching the market may hardly become aware of the true situation. In most instances old companies still have par-value stock which can be exchanged for the same number of shares without par value. This will yield almost the entire remnant of the original capital for the new surplus account. As for the stockholder, he simply exchanged old-fashioned shares for modern ones to keep abreast of the times.

§ 38. The yield of stocks paying stock dividends.

When the market performance of stocks paying stock dividends is compared with that of other stocks, complaints are frequently heard about the inflated yield of the former.[5] To determine whether this accusation is justified or not, let us assume the existence of twin companies similar as to size, operations, business prospects and every other particular. Each company earns, say,

[5] Cf. R. H. Montgomery, Letter to Editor. *The Journal of Accountancy,* July, 1928, pp. 42–43.

10% per annum on its paid-in capital throughout a number of years, during which the money rate remains unchanged at 5%. They start off together with equal exchange values of $200 a share, $100 of which is book value and $100 good-will. By the end of a year, the book values are increased by 10%, but if employment can be found for those earnings, that is, if the expansion rate equals the earning rate, there will be no cash available for dividends, because it will have been immediately reinvested in the productive units. For the same reason, the good-will commanded by the shares in the market will also have increased by 10% since the aggregate earnings are going to be that much higher next year, corresponding to the constant yield per dollar invested. (See § 5.)

With the book value of a share at $110 and the market at $220 for both companies, one decides to pay 10% in stock and the other 10% in cash, thereby distributing the entire earnings. The stock dividend will reduce the book value of a share to $100 and the market value to $200. The stockholder who sold the dividend will have realized $20 in cash. The other company with some difficulty scrapes the money together to pay the cash dividend which reduces the value of a share to $100 on the books and to $210 in the market. Immediately after payment, however, it finds itself seriously inconvenienced through the depletion of its working assets and takes steps to obtain the additional capital needed. It will therefore issue subscription rights entitling to one share for every ten held at a price of $100. The market value of a new share will be

$$\frac{210 \times 10 + 100}{11} = \$200$$

and the value of this right is therefore $10. The stockholders of one company receive a stock dividend worth $20 and those of the other company a cash dividend of $10 and rights worth $10. Equal returns on equal investments! This shows that if companies are similar, the dividend policy can not make the yields differ.

Two companies are not comparable, however, merely because their earning rate is the same. The expansion rate is an equally important consideration. If it be supposed that the company electing to pay the cash dividend did so because its expansion rate was nil and therefore it had no use for the money, the yields will differ.

In that event, no difficulty was experienced to obtain the cash for the dividend, because the earnings were merely hoarded in the treasury pending distribution. For the same reason the productive unit is still its original size. No greater profits can be expected for next year and therefore the good-will does not increase. At the end of the first year, then, the book value of a share in either company will be $110, but the market values will be $210 against $220. If one company now pays 10% in cash and the other 10% in stock, both shares after the dividend will be back at the starting point, but one has yielded $10 and the other $20. This is the fictitiously high yield that is being held against rapidly growing companies that can not afford to pay cash dividends because they need the money! It is not the stock-dividend policy that is somehow superior in an unfathomable way; the company itself is superior. If that were not so, the declaration of stock dividends could not help. For instance, if neither company has an expansion rate, the market quotation will be $210 for the stock of each at the end of the year. The declaration of a 10% stock dividend will reduce it to $100 on the books as a cash dividend would, but in the market the price will drop to

$$\frac{210 \times 10}{11} = \$190.91$$

The stock dividend can be sold for $19.09, $10 of which represents earnings and the rest a return of capital. The yield is again equal for equal companies.

As shown by the examples given, the difference between an investment in a stationary company and an investment in an expanding company is that the former entitles to the earnings of an unchanged productive capital and the latter to the earnings of a growing productive capital. The undistributed earnings of a company which does not expand, represent unproductive capital worth only its distributive or cash value. To the investor in an expanding company, on the contrary, earnings which can be reinvested are worth as much as the original capital, that is, each dollar earned has a minimal investment or exchange value obtainable by multiplying it with the quotient of the earning rate over the money rate. This value is based upon the assumption that the company will not expand further, but will—in future years—merely maintain its

earning power on the capital already accumulated. If it is probable that the process of expansion has not been arrested, the fair exchange value must logically be higher. The figures used in the example are therefore too conservative, for it is not to be assumed that a share can be bought for $200, if there is a chance that it will yield more than $10 per annum. The substitution of higher exchange values into the example shows, however, that an increase in the market price can not reduce the rate of the yield because the amount yielded increases in the same proportion. An initial market price of $500, for instance, would have increased to $550 by the end of the year. The sky is apparently the limit!

This theory is frequently denounced as a fallacy and a vicious circle exploited by shrewd manipulators. Actually, it is the practical demonstration of the mathematical truth that the present value —at the money rate—of any investment capable of the perpetual compounding of earnings at a higher rate, must be infinite. That stocks are not really sold for an infinite consideration is explained by the factor of risk. Future prospects are discounted, not only at the money rate, but also at the rate of the risk, which rises to infinity for an infinite period. As a simple approximation of the gradually increasing actuarial risk it has been said in § 5 that the investor appraising the stock is willing to concede only that the company will continue to expand for a small number of years representing the horizon or limit of visibility into the future. For what lies beyond, he is not willing to pay more than the present value of a perpetuity of equal payments. Whenever the limit of visibility is shorter than the period during which the company will continue to expand, an undervaluation of the stock must result.

To illustrate this theory once more, let us assume that a corporation has demonstrated in the past not only its power to earn an average of $1 per annum on every $10 of book value, but also its ability to reinvest those earnings without bringing about a decrease in the return stated. As far as expansion is concerned, the investor refuses to look more than, let us say, ten years into the future, but he believes that the company will be able to earn 10% on its capital for several generations after it has lost the ability to reinvest those earnings. What is the fair value of this investment to yield 5%?

The present value of a perpetuity of $1 a year would evidently be $20, but this stock is expected to yield considerably more than

$1 a year. First of all the present capital investment will increase to 10×1.1^{10} in ten years. At that time, according to the assumption, the company will cease to expand further, but will continue to earn 10% on the accumulated capital. In the absence of an opportunity for reinvestment, those earnings will have to be distributed in cash, yielding to the present purchaser of a $10 equity a perpetuity of 1.1^{10} or $2.50 per annum, the first payment to be made eleven years from now. The value of this perpetuity one year before the date of the first payment is $51.87. Dividing by 1.05^{10}, the value of a present corporate equity of $10 is found to be $31.84 instead of $20, as estimated on the basis of mere earning power, without regard to capacity for expansion.

Let us see now, what happens a year after the acquisition of the $10 equity for $31.84. If the investor's original estimate, that the company will expand for ten years and no more is borne out by the consensus of opinion a year later, the value of the stock will have risen to $\$51.87 : 1.05^9 = \$33.44$; an increase of $1.59 yielding a 5% return as expected. As a matter of fact, however, the investor did not really estimate that the company would stop expanding at the end of ten years; he merely refused to look further ahead. If prospects remained unchanged during the year elapsed, he will again be willing to look ten years ahead and, seeing no signs of an approaching saturation point, will be inclined to repeat last year's bargain of buying a $10 equity for $31.84. By doing so, he will pay $31.84 for ten-elevenths of the equity which cost the same amount a year ago, that is, the market price of last year's $10 equity, which has become this year's $11 equity, has risen from $31.84 to $35.02; a yield of 10%. Through disinclination to look far enough into the future, the investment has been undervalued last year and will remain undervalued from year to year, until the end of the expansion period is actually in sight. In the meantime the investor's wealth, originally equalling the purchase price of $31.84, will be compounded at the rate of 10% per annum, notwithstanding the fact that the company is compounding only the original book value of $10 at the same rate. For every $1 earned by the company, the investor's wealth increases by $3.18!

For the general case, where earning and expansion rates differ, it may be said that:

So long as the end of expansion is not in sight, the yield of common stocks equals in the long run the weighted average of the

earning rate on the book equity and the expansion rate on the trend of the market equity. (See § 74, formula 32.)

As applied to Figs. 2 and 3, this means that at any given date, the ordinate of the book-value curve, for instance $\overline{OB}$, can be expected to yield income at the earning rate, while the difference between the book value and the trend, *e.g.* $\overline{BT}$, has a similar expectation at the expansion rate. As soon as the end of expansion emerges on the horizon, the market equity ($\overline{BT}$) practically stops expanding and the yield of the entire investment ($\overline{OT}$) is reduced to the money rate.

This mathematical analysis assumes that expansion will stop suddenly and without transition. In practice, the expansion rate will begin to decrease and disinclination to look as far ahead as before will grow gradually. In such circumstances, the yield will slowly decline toward the money rate, without dropping suddenly to its level. In any event:

The current yield of an investment expanding indefinitely at a rate higher than the money rate must, for any cost short of infinity, be higher than that of a stationary investment, provided the earning rate is also higher than the money rate.

This statement can be confirmed by comparing the market premiums of the stocks presented in Figs. 2 and 3. The former, although by no means a stationary investment, has expanded less rapidly than the latter. The premium commanded by the latter is accordingly much higher in proportion, but not high enough to equalize the yields. (See computation in appendix § 77.) Several subsidiary laws throwing further light upon the yield of common stocks are obtained in the appendix by applying the general law to special cases.

The reasoning presented has no direct connection with a stock dividend policy. It applies with equal force, whether stock dividends are distributed or not. Rapid expansion, however, entails a chronic shortage of funds and stock dividends happen to be the most suitable means of giving the stockholder a tangible evidence of progress without depleting the working capital. That is why stock dividends and a high yield usually go hand in hand. Neither created the other; both are the creatures of rapid progress.

§ 39. The danger of inflation.

The most important and at first sight most startling deduction from the laws of the yield is that it is possible for a stockholder to receive a higher income from his stock than the company earns on the same stock.[6]

The truth of this assertion has been challenged by the familiar illustration of the chain of holding companies, the first of which owns an operating company, while the others have no assets other than the stock of their predecessor in the chain.[7] A $10 equity in the operating company, expected to earn 10% p.a. at a time when the money rate is 5%, would appear to be worth $20 in the market, and is so recorded on the first holding company's books. If, by the end of the year, expectations have been realized and earnings at the rate of 10% are again assured on the increased equity of $11, the market quotation will have advanced to $22 indicating that the holding company has earned $2. But a $20 equity earning $2 in a year is evidently worth $40, so that the second holding company would have been justified in recording the stock of the first one at that figure. The new book equity of $22, in turn, is expected to earn an income of $2.20, so its seemingly proper market quotation is $44, indicating that the second holding company earned $4 on an investment of $40. To the third holding company this investment is worth $80 at the beginning and $88 at the end of the year. Each further holding company appears justified in valuing the stock of its predecessor in the chain at double its book value, although it is evident that all companies together are worth no more than the operating company alone, which is the only productive unit.

This *reductio ad absurdum* is often accepted as conclusive evidence that the high yield of stocks paying stock dividends must be fictitious and that the stockholder must have impaired his invested capital if he succeeded in selling his quarterly stock dividends for more than the company earned during the preceding quarter. On closer observation, however, it should become apparent, that such a conclusion is too sweeping. All that the example of the holding company chain proves is that economic laws can be applied only

[6] Cf. Note 5.

[7] Cf. J. M. B. Hoxsey: Accounting for the Investor. *The Journal of Accountancy,* Oct. 1930 pp. 282 ff.

to economic units and not to legal units. The chain may well consist of n legal entities, but it represents only a single economic entity; the operating company. The holding companies are scraps of paper and nothing more. Pursuing this thought to its logical conclusion, it will be found that ownership, by a company, of another company's stock is meaningless. Economic theory recognizes only the instrument of production and its owner; intervening symbols of legal ownership have no substance. (See § 2.) Any attempt to consider such empty symbols as original instruments of production will lead to inflation whenever the element of expansion is present.

In final analysis then, no negotiable symbol of productive and reproductive wealth should be appraised on the basis of its yield, if it is issued in whole or in part against similar symbols already so appraised. This principle requires that consolidated balance sheets and income accounts be prepared in accordance with standard accounting procedure for the entire group whose ownership is evidenced by the stock to be appraised. The laws of the yield, therefore, can be used as a basis of record only by private investors or by organizations which do not issue negotiable evidences of equity. A corporation can take up income from corporate stocks only in amounts not exceeding the corporate earnings applicable to them.

§ 40. Stock dividends and the market.

When the proceeds of stock dividends sold are considered new accretions to capital in their entirety, the fluctuation of market quotations around the trend will give a speculative quality to stocks paying dividends in additional stock, because their immediate yield does not consist merely of corporate earnings and increase in the trend value of the market premium, but also of daily profits or losses. Investors in stocks paying cash dividends can realize neither daily profits nor increases in the trend value of the market premium without selling some of their original shares. Although there are cases in which such a step for cashing earnings is justified (see § 62 and Fig. 25), it is not usually favored, so that in the public mind the cash dividend is generally compared with the selling price of stock dividends to determine the respective yields of the two investments. This comparison is fallacious, but

it is nevertheless commonly made, with the result that an issue paying stock dividends is seriously criticized in times of a speculative boom because:

> ". . . fluctuations in its value do not bring changes in the so-called yield, variations of which on cash-dividend stocks tend to compress the upper and lower limits of a stock's price range." [8]

What is meant here is that the annual cash dividend divided by the market price of the stock gives a rate which fluctuates in a sense opposite to that of the market, while the market price of the stock dividend divided by the market price of a share will always give a constant percentage, namely, the rate of increase in shares. Whereas therefore the incentive for buying an issue paying cash will be reduced by every rise and increased by every drop in its price, an issue distributing stock will not be subject to the same limiting influence and may consequently enjoy a proportionately wider range in quotations. (N. B. Compare Fig. 2 with Fig. 3.)

The only occasion when the selling price of stock dividends can be compared with a cash dividend paid by another company is illustrated by the example given in § 38. The $20 realized by selling the 10% stock dividend distributed by the company expanding at the rate of 10% is comparable to the $10 cash dividend of the stationary company because these figures represent the respective total returns on equal original investments of $200 in two different stocks. In actual practice such a situation is not apt to occur.

A valid comparison of yields must be based upon earning and expansion rates, a fair approximation of which can be obtained from the book-value curve, if all data regarding distributions are available. For more accurate results it will be necessary to make complete analyses of the corporations in question, extending to their accounting procedure, trade outlook, management policies and all the other criteria of value enumerated in § 6. The trends computed in a manner most consistent with the information accumulated may then be used in lieu of the book-value curves.

That there is a difference between the two methods can be seen in Figs. 2 and 3, even though the trends there shown for

[8] C. B. Reeves: Stock Devices Explained. *New York Evening Post,* Jan. 17–24, 1931.

illustrative purposes are not based upon any exhaustive analysis. As explained in § 7, these trends per share were obtained by fitting a straight line to the market quotations per dollar of book value and multiplying the resultant trend per dollar by book values. Although the straight lines are not shown in the charts, it is still noticeable that they can not have been horizontal. In fact both show a slight ascending tendency which is more marked in the case of Fig. 2 than for Fig. 3. This rising trend may be due to several reasons. Decline of the money rate, growing distance of the competitive *horizon* and undue conservatism in accounting procedure could all account for it. In Fig. 2 the last reason is evidently present, because the book values per share were taken from the balance-sheet of a holding company, which records as income only the dividends and not the earnings of its subsidiaries.

Earning and expansion rates are computed for Figs. 2 and 3 by both methods in the appendix, §§ 75–76. From them the yield is obtained in § 77 by applying the general law italicized in § 38. For practical purposes, guessing must frequently take the place of analysis and computation, but even a guess can have value only if the fundamental principles are borne in mind.

CHAPTER VI

STOCK RIGHTS

§ 41. Introduction.

The broadest possible definition of a stock right would describe it as a differential between the respective values of equity (stock) and property (including cash) exchanged for each other when the corporate capital structure is being changed. There are two main divisions of stock rights:

1. Rights issued to the owners of the residual equity;
2. Rights issued to outsiders, including the holders of other forms of equity.

The latter may be subdivided into rights valued for a present differential and those valued for a differential not yet in existence but to be created by future corporate earnings and market appreciation.

Rights issued to the owners of residual equity are commonly called subscription rights. Terminology is rather vague as to the miscellaneous rights springing from the issuance of stock to outsiders under various conditions, except that the name "warrants" is applied with fair consistency to options entitling to the subscription of stock at a price which, it is hoped, will be below the future market price at some time before expiration of the privilege.

Subscription rights and warrants are usually evidenced by paper certificates describing the privileges conditionally granted for a definite period. The remaining forms of the entire body of rights are not so well organized; indeed their existence is sometimes doubted, although they must arise whenever unequal considerations are exchanged at par for each other. Since the theory of all stock rights follows a uniform principle, their discussion from the investor's point of view is best opened by approaching the least complicated forms first.

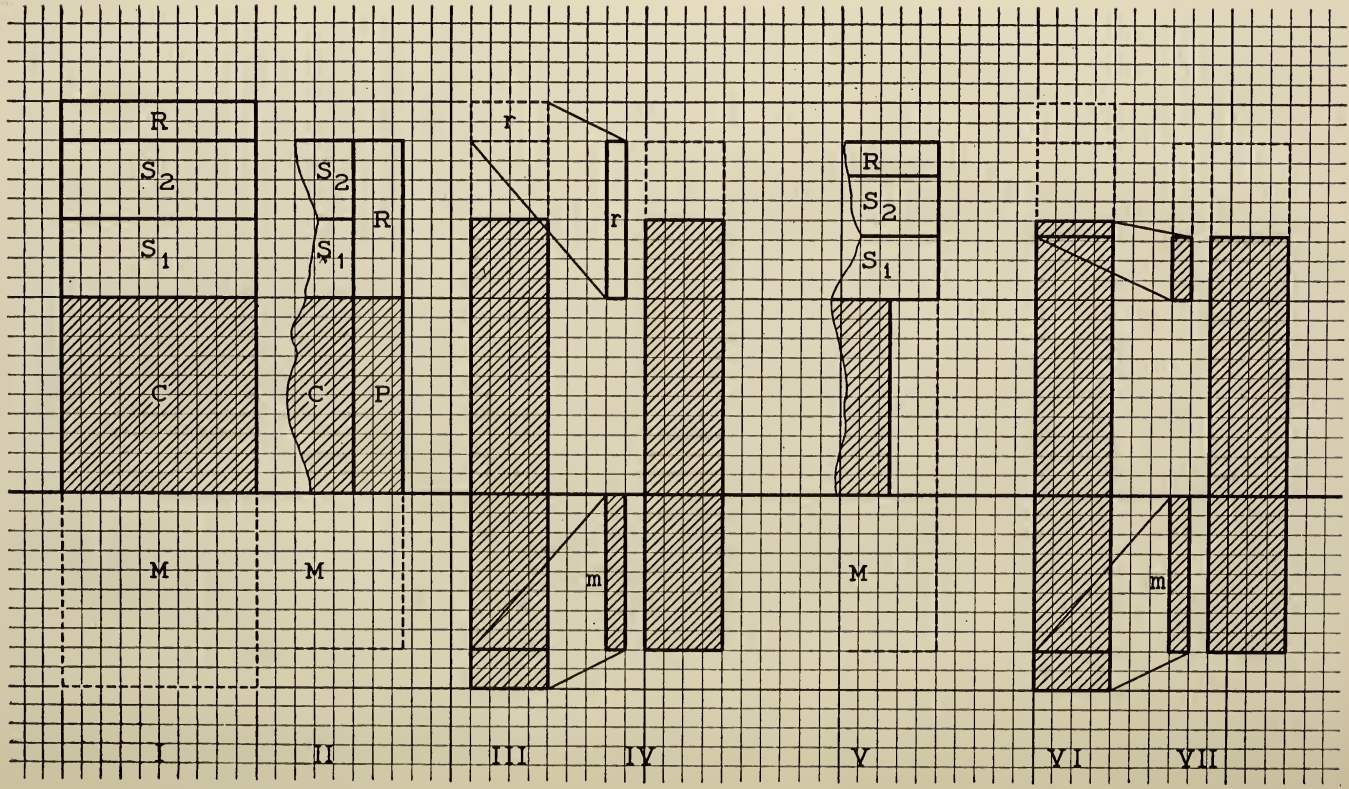

FIG. 17.—POSITIVE STOCK RIGHTS

One horizontal unit = ten shares.

One vertical unit = $10 per share.

The corporate book equities are shown above the axis and the market equities below it.

Investments shaded—earnings unshaded.

I. Corporate capital structure immediately before issuance of stock rights (100 shares having a book value of $200 a share, of which $100 was paid in and $100 earned subsequently).

II. Same after rights entitling to the subscription at $100 of one new share for every four old shares have been exercised in full. The surplus layer R was brought down to match S_1 and S_2, thereby making up the difference between the book value of 25 new shares and their subscription price P. (This diagram assumes that a journal entry was made, charging earned surplus and crediting capital surplus with $2,000.)

III. Position of investor before issuance of rights. M, C and S_1 were purchased, while S_2 and R accrued subsequently, but were never recorded.

IV. Position of investor immediately after receipt of 40 rights entitling to the subscription of 10 new shares @ $100.
r = dividend income.
m = transfer of market equity from old shares to rights.

V. Same as II, but conforming to general usage which requires no journal entry charging earned surplus and crediting capital surplus.

VI. Same as III.

VII. Apportionment of cost of 40 shares over 40 shares plus 40 rights in accordance with Federal income tax regulations.

§ 42. The issuance of stock.

When additional stock is sold or issued in payment for assets acquired, the transaction is equivalent to admitting a new partner. As described in accounting textbooks, the consideration paid for admittance may be the exact book value, but it is more likely to be either more or less than that amount. In either of the two latter events, the question ought to be asked: who is right? Is the fact that the new entrant can acquire an interest for less than its book value an indication that the books overvalue the business? On the other hand, should the books be written up to correspond to an offer in excess of the original book value? Unless specific errors can be found in accounting procedure, it may not be desirable to make an adjustment in either direction. After all, books are based on cost, whereas an offer reflects exchange values. (See § 5.) The shifting of book equities, which accompanies every admission above or below book value, may be expressed in terms of dollars flowing in one or the other direction. Partners' accounts, being kept in dollars, reflect this shifting clearly. Stockholders' accounts, on the contrary, are kept in shares, the number of which remains unchanged, because the company issues new additional shares to the new entrant. This procedure obscures the fact that the dollars of productive equity have shifted in exactly the same manner as in the case of a partnership, since the same number of shares no longer represents the same proprietary interest. The unrestricted right of directors to fix the price of shares without par value has gradually overshadowed the fact that that value need by no means equal the value relinquished by the stockholders in exchange for the benefits acquired.

A flow of book equities from the old stockholders to the new interests may be observed in Fig. 17, diagrams I and II. Twenty-five shares having a book value of $200 each are issued at par in payment of property (P) worth $2,500. The surplus layer R worth $2,000 was transferred from the old stockholders to the vendors of the property. In diagrams III and IV the changes in the financial condition of the investor are pictured in accordance with the views expressed in this book. The investor's 40 shares were purchased at $240 before the surplus layers S_2 and R were earned. The book value of the distribution (r) is $20 a share, which, it should be remembered, does not go to the stockholder,

but to an outsider. The loss to the holder of 40 shares amounts to $800 in unrecorded corporate earnings and $800 in dilution of the market premium purchased. Under present methods, such a loss of equity will pass unnoticed and therefore cause inflation. What happens in effect is that since cost is left unadjusted by the reduction, the recorded market premium of a proportionate unit of equity will be increased by the capitalization of a loss and will exceed the actual price paid for it at the time the investment was acquired.

Diagrams V to VII of Fig. 17 show the logical extension of the Stock Exchange rule on stock dividends to a stock right. No transfer from surplus to capital stock or capital surplus having been made by the company, it is decreed that no corporate earnings have been distributed. By adding the subscription price to the cost of the original lot and averaging the total, the value of a stock right to the investor will be found to equal the difference between the average price and the subscription price as shown in the diagram. The top of the surplus layer S_1, which originally marked the dividing line between the investor's capital and his earnings will again do so in its changed position (at a book value of $132). The rule, therefore, protects the investor as in the case of stock dividends, provided he is the recipient of the distribution. If he is not, no regulation exists for enforcing the write-off of $800 according to diagram IV or $1,120 in conformity with a more arbitrary method. This defect could be remedied by the additional rule already suggested that corporations be compelled to charge the entire book value of their distributions to surplus. It should be recognized that a stockholder has other expenses than those enumerated in the corporate profit-and-loss account. There is no reason why such expenses should be hidden away where they can be detected only by putting the corporate balance-sheet through an intense cross-examination by ratios. If a proper charge to earned surplus were demanded, the surplus accounts appended to the other closing statements would have to explain the item.

Conversely, the stockholder may also have a book profit which is not due to corporate operations. In Fig. 18 an appropriate corporate capital structure (I and II) is contrasted with the changes in the investor's financial condition (III and IV) upon the issuance of 25 shares having a book value of $200 a share for property worth $6,875. The market premium purchased with

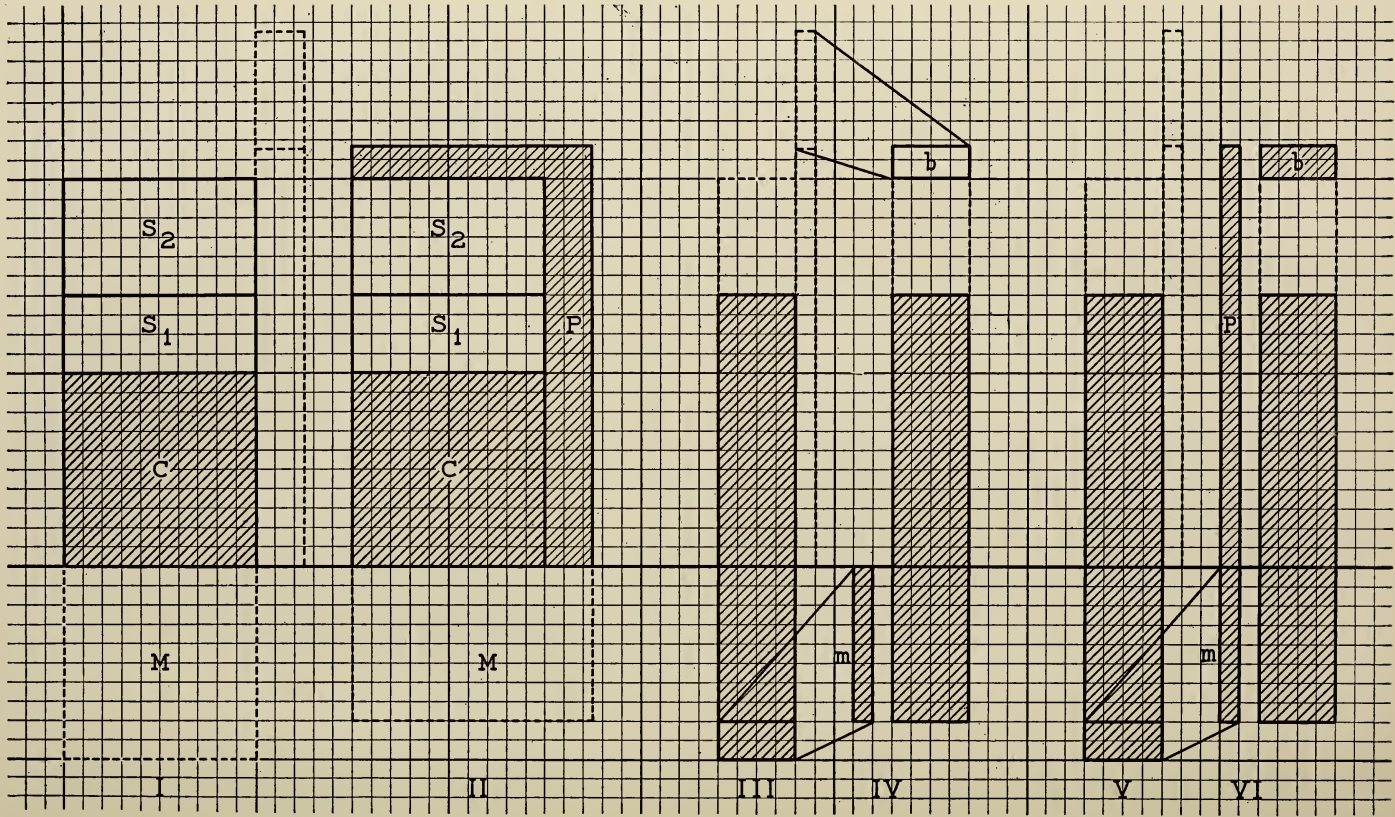

FIG. 18.—NEGATIVE STOCK RIGHTS

One horizontal unit = ten shares.

One vertical unit = $10 per share.

The corporate book equities are shown above the axis and the market equities below it.

Investments shaded—earnings unshaded.

I. Corporate capital structure immediately before issuance of stock rights. Dotted parallelogram on right indicates subscription price ($275 a share).

II. Corporate capital structure after rights entitling to subscription at $275 of one new share for every four old shares have been exercised in full. A portion of the subscription price matches the original capital, another the earned surplus and a third increases the former book value of a share by $15.

III. Position of investor before issuance of rights. M, C and S_1 were purchased, while S_2 accrued subsequently, but was never recorded.

IV. Position of investor, who contemplates the sale of 40 rights entitling to the subscription of 10 shares @ $275. The selling price will compensate him for the difference between a $15 gain (b) per share and a $20 loss in market equities per share.

V. Same as III.

VI. Position of investor who has exercised his rights. He has paid not only for the book value of the new shares but for the increase in the book value of the old shares as well.

the investor's 40 shares must again be divided by 50 to obtain its new value per share in the usual manner. This loss (m) of $800 is partly offset by a profit (b) of $600 derived from the bonus paid by the new stockholder. Opinions may differ as to when this profit is realized. The accrual method would record it immediately; other methods, adhering strictly to their rules of recording income only upon receipt of certain kinds of distributions, may be unable to perceive it at all. At any rate, it has been realized to the same extent as corporate earnings and it has enhanced permanently the total exchange value of the investment, if not its recorded value. Diagrams V and VI illustrate a subscription right exercised, which will be discussed in due course.

The issuance of stock may take place through its sale for cash or as a means of payment for property and indebtedness. The essential considerations are the same in each event.

§ 43. The redemption of bonds by stock.

During the 1929 boom a company retired its bonds by exchanging them for common stock having only a nominal stated value. As the management was addicted to the practice of combining the remainder of the equity in a single surplus account, the exchange was recorded by charging bonds payable with par and crediting all but a few cents of the total to surplus.[1]

To determine systematically whether the old stockholders gained or lost by the transaction, the following steps would be necessary:

1. To revise the company's figures and bring them into conformity with standard accounting procedure. (This would include the separation of earned surplus from paid-in surplus.)
2. To compute the total net worth (residual equity) and from it the book value of a share just before the redemption of the bonds.
3. To add the total book value of the bonds to be redeemed (par less unamortized discount) to the residual equity.
4. To divide this sum by the new number of shares outstanding.

[1] Cf. J. R. Wildman and W. Powell: Capital Stock Without Par Value. A. W. Shaw & Co. New York 1928.

The difference between the book values of a share before and after redemption measures the gain or loss on the stockholder's investment in book equities. A loss will occur in market equities since the same increment of exchange value over book value is distributed over a greater number of shares. Whether this loss can be considered as offset by the unrecorded increase since acquisition will depend upon considerations discussed in relation to good-will. (See § 29 and Figs. 9 and 10.)

Figs. 17 and 18 (diagrams III and IV) are well suited for the review of the two types of situations which may occur when bonds are exchanged for stock. In Fig. 17 (diagram II) a share was issued for each $100 of book value (not par value) in bonds. All old stockholders lost $20 of book equity per share and 20% of their market equity at the day when the conversion was effected. Those are the incontestable and uniform facts. As for the stockholders' records, there will be no uniformity whatever. Each one paid a different market premium upon acquisition and each one had his own methods of recording changes since that event. Diagram IV of Fig. 17, therefore, is by no means a generalization, but merely a sample selected at random. This particular investor ought to write off $800 as a loss, because he never recorded the corporate earnings, a part of which (r), is likewise lost.

In Fig. 18 (diagram II) a share of stock was exchanged for $275 of book value in bonds, with the result that the book equity of a share increased by $15. That and the 20% dilution of the market equity in existence on that day are facts. The records are a matter of individual opinion. The stockholder who paid $100 a share premium seems to have lost $5 a share net, if we disregard the unknown market quotation on the redemption date. Another who originally paid only $50 in excess of book value might record a profit of $5 a share. Either might disregard the profit as unrealized and record only the loss. Still another may conclude that the recorded value of his shares is so far below the level of the trend that he can afford to disregard the dilution of the market premium purchased and record the profit in book values besides. The actual value of a share is the same in everybody's hands, only opinions differ as to how much of it ought to be recorded.

Normally, a company will not redeem bonds in stock, unless the latter is rather generously appraised in the market. A favorable ratio of exchange will exist in times of inflation, when stock

quotations are above their respective trends and bond values are depressed.

§ 44. Common stock issued in payment of interest or preferred dividends.

The New York Stock Exchange has a rule reading as follows:

> " In cases where stock is issued as interest upon funded debt or as a dividend upon stock of another class with a cash alternative, the amount of such cash alternative measures the minimum amount properly to be charged against earnings or earned surplus. The effect of issuing stock as interest or dividends upon other securities should be merely to conserve cash and not to add to the apparent earnings or the apparent earned surplus, as contrasted with the effect of the cash alternative." [2]

This regulation disregards the fact that, from the company's viewpoint the value of stock is its book value and not the cash alternative. In times of a speculative boom stock can undoubtedly be substituted at a saving, whereas during a depression it may be at a discount as compared with cash. There will accordingly be a gain or loss to the investor whose equity is diluted by the issuance of new shares. If this gain or loss is disregarded, the original cost of acquisition is changed, since the same amount in dollars no longer represents the thing it originally purchased. That inflation will result from the indirect capitalization of a loss in this manner was pointed out when Fig. 17 was first described.

By changing the wording of the explanation slightly, Figs. 17 and 18 may again serve to demonstrate the effects upon the investor of the issuance of stock in payment of interest or preferred dividends.

§ 45. The repurchase of stock.

The repurchase of stock is the opposite of its issuance, but may give rise to rights in the same manner as the latter. If stock is reacquired by the company at a price below its book value, the stockholder gains his aliquot part of the difference. If, however, his holdings were recorded at a premium, serious consideration must be given to the question whether the investment in that mar-

[2] Report of the Special Committee on Stock Dividends. September 11, 1929.

ket equity can be a good asset at a time when the stock is worth less than its book value. Conservatism requires that at least the gain in the book equity be applied toward the amortization of the doubtful market equity.

One of the modern developments of corporate finance is the large-scale purchase, by a company, of its own stock in times of depression. Such a policy not only results in favorable publicity arising from the power of resistance shown by the stock during a general decline, but it also provides a large supply of shares at a cost below their trend value, to be used for the purchase of another company after the market has recovered. Occasionally the shares will have to be acquired at a premium even in a bear market, so that the company will suffer a book loss. Whether such a loss ought to be taken or not is open to some doubt. If the price paid was below the trend value, the chances of at least an equal profit upon final disposal are better than even. The argument may be advanced, indeed, that the loss is non-existent and denotes merely the inadequacy of standard accounting procedure. It is perhaps best, therefore, to treat speculative purchases as other investments, by deferring a reckoning until the transaction is completed, even though this will temporarily state the treasury stock on the balance sheet at cost.

There are other reasons why the accumulation of treasury stock may be desirable. Let us take the case of a company which has practically reached the limit of its expansion and is now earning a highly satisfactory return upon a constant capital. The stockholders in control would like to compound their earnings, but are unable to do so, because additional capital can not be used. By cutting the dividend rate and using the undistributed earnings to buy up the floating supply in the market, they may be able to drive a better bargain than by the more ethical procedure of reinvesting cash dividends in additional shares.

Irrespective of the motives prompting the redemption of stock the stockholder may consider that the decrease in book value caused by a purchase at a premium below the level of the trend is offset by a corresponding increase in market equities, so long as the withdrawal of funds does not reduce the productive capacity of the company.

The situation is entirely different if stock is reacquired by way of liquidation. In that event the funds are withdrawn from pro-

ductive assets and will decrease future returns. No gain in market equities can be expected and the loss in book value caused by the repurchase of stock at a premium is not a mere transfer from book equities to market equities but an uncompensated loss to be written off by the investor.

The pro-rata redemption of shares from stockholders offers various aspects of interest in relation to taxation. It may be adopted under either of the two situations which have been outlined in Figs. 17 and 18, but no shift of equities from one stockholder to another takes place and this limits the effects of the transaction to those of a cash dividend.[3] The equities owned by each stockholder before and after the distribution will differ only by the amount of cash received. The book or market equity represented by a share may become greater or smaller, depending upon whether the cash payment amounted to more or less than the book or market value of the shares retired.

§ 46. Subscription rights.

There is no theoretical difference between the stock rights described and a subscription right issued to stockholders. All that must be done is to look upon the same problem from a different angle. Instead of an outsider, the stockholder himself is the recipient of the distribution. Its value has not changed in the least, but, instead of being given away, it is merely taken from one pocket and put into another. Whether or not a difference in the recorded capital level will result depends again upon the investor's recording method. It is a fact that in Fig. 17 (diagrams III and IV) the $20 book value of a right is derived from unrecorded corporate earnings, but it is futile to argue about the time when those earnings are realized, especially as rights are short-lived and must be sold or exercised to avoid a loss. An investor is always better off by the amounts his company has earned, whether or not those amounts are distributed to him.

The rights pictured in Fig. 17 entitle to the subscription of one share at $100 for every four shares held (1:4 @ $100). The book value of a right can be determined by adding the book value of four shares to $100 and dividing that sum by five. The difference between the old and new book values of a share is the book

[3] Cf. Federal Income Tax Regulations 77, Art. 629.

value of a right. This was done graphically in Fig. 17, diagrams I and II. When the rights are received, the surplus layer R is distributed and r = $800 is transferred from the stockholder's unrecorded earnings to the certificate representing 40 rights. Simultaneously the market premium purchased will be reallocated, transferring another $800 to the rights, this time from the original invested capital. Assuming that the current market price of a share ex rights is $300, a right ought to sell for about $50, or 40 rights for $2,000. Under the recording method (see § 16) followed in the preparation of diagrams III and IV the journal entry upon sale of the rights would be the following:

Cash (Selling price)	$2,000	
To Investment (m)		$800
Dividend income (r)		800
Profit on sale (not shown)		400

The description "dividend income" is selected to emphasize that the income recorded is equivalent to the receipt of a cash or stock dividend.

If the same rights were exercised, the following record would be made:

Investment lot No. 2 (10 shares)	$2,600	
To Cash (Subscription price of 10 sh.) ...		$1,000
Investment lot No. 1 (40 shares) (m) .		800
Dividend income (r)		800

The new shares ought to be kept in a separate lot, because their cost of $2,600 includes all corporate earnings up to the date at which the rights were issued, whereas on the old lot $40 a share is still unrealized. The gradual increase in the number of separate lots is an evil existing to the same extent under the Federal income-tax method. It could easily be avoided by recognizing that distributions are not at all essential to the recording of income.

In Fig. 18 the subscription price of the stock ($275) is higher than its book value, ($200) because the market price is higher still. This situation creates what may be called negative stock rights. Instead of distributing a dividend of $20 a share, as in Fig.17, the corporation levies an essessment of $15. With the market price of a share at $315 ex rights, the value of a right would be about $10 and the record upon the sale of 40 rights:

Cash (selling price)		$400	
To investment (m)	Cr. $800		
do (b)	Dr. 600		$200
Profit on sale (not shown)			200

A double profit on sale may be noted in this entry. The book value of the investment increased by $600 and in addition $400 in cash were received. Since, however, the market premium must be written down by $800, this double profit does not look so attractive as it would if the holdings had been purchased at their book value.

In diagram VI of Fig. 18 the investor's condition is shown after exercising the rights. The corresponding journal entry is:

Investment No. 2 (10 shares)		$2,950	
To Investment No. 1 (40 sh.) (m)	Cr $800		
Investment No. 1 (40 sh.) (b)	Dr 600		$ 200
Cash (subscription price of 10 sh.) ...			2,750

Sixty dollars a share on the old lot remained unrealized because the method used is unable to record earnings not distributed.

§ 47. Degrees of "generosity" in subscription terms.

It makes no difference to the company whether a few shares are issued at a high price or many at a low price. What matters is the amount of the additional capital needed, and that can be obtained by a number of appropriate combinations. To the stockholder, on the contrary, the terms may be more or less attractive. When a company issues rights entitling to subscription at very low prices, the offer is termed generous. This so-called generosity widens the limits within which the investor may choose between increasing or decreasing his investment in the company. In Fig. 17, for instance, the owner of 40 shares had the option of retiring $1,600 (the daily profit on sale is not to be considered) or of investing an additional $1,000 in cash. In Fig. 18 the option consisted of retiring $200 or investing $2,750. The former combination looks far more generous, but the example is not a good one, because the latter yields a much greater amount of additional capital. Fig. 19 compares a distribution of 1:4 @ $100 with one of 1:2 @ $50, both of which yield $2,500. The choice shown in

diagrams II and III is that of withdrawing $1,600 or investing $1,000 whereas in IV and V $3,333.33 may be withdrawn or $1,000 invested. The latter option is more attractive, because it affords the investor a wider range of choice. By exercising some of his rights and selling others, he may adjust his investment in the company to any desired level within the limits granted. Such adjustments will include the realization of hitherto unrecorded earnings, the amount of which was included in the computation of the highest possible withdrawal. Whether those earnings were recorded or not has no bearing upon their existence and convertibility into cash. It is just a question of what account to credit on the investor's books.

Three positions of special interest may be imagined within the unlimited range of rights, offering choices between:

1. Maintaining the investment intact at its level just before the distribution or reducing it.
2. Increasing or decreasing it by equal amounts.
3. Maintaining it intact or increasing it.

These special cases as well as the figures given by way of examples should be looked upon from the individual investor's point of view as affected by the size of the market premium purchased. The first of the three positions may easily be identified as the stock dividend and the last as subscription at the market price.

It may be inferred that normally a right entitling the investor to choose between increasing or decreasing his investment within wide and equidistant limits from the neutral point would be the most attractive, but the matter requires a close study of stockholder-psychology. After all, any investment may be increased or decreased within far wider limits by placing orders in the market.

§ 48. The penalty for failure to sell or subscribe.

Although a positive subscription right (*i.e.* a right entitling to subscription below book value) is a distribution of equity essentially similar to a stock dividend, it differs from the latter by the condition attached to it. Unless it is used for the purpose intended, either by the stockholder or his assignee, its equity value is canceled as if it had never been distributed. If nobody exercises his rights, no distribution takes place, but if some do and others

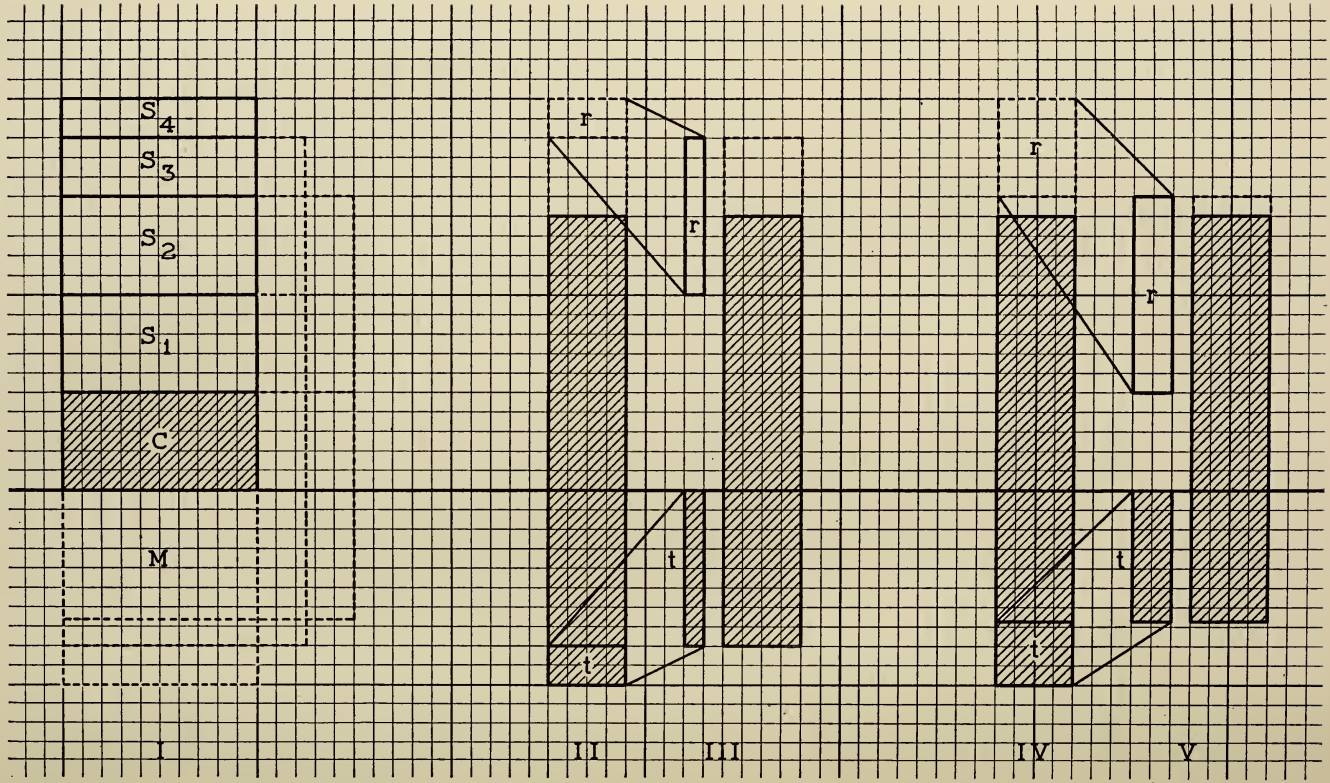

FIG. 19.—COMPARISON OF SUBSCRIPTION RIGHTS

One horizontal unit = ten shares.

One vertical unit = $10 per share.

The corporate book equities are shown above the axis and the market equities below it.

Investments shaded—earnings unshaded.

I. Corporate capital structure before issuance of rights. Dotted parallelograms on right compare effect of subscription privilege of 1 : 4 @ $100 with that of 1 : 2 @ $50. Either privilege, if fully exercised, would yield $2,500 of new capital to the company.

II. Position of investor before issuance of rights. M, C, S_1 and S_2 were purchased while S_3 and S_4 accrued subsequently, but were never recorded.

III. Position of investor after rights entitling to subscription at $100 of one new share for every four old shares have been exercised in full.
r = dividend income.
t = transfer of market equity from old shares to rights.

IV. Same as II.

V. Position of investor after rights entitling to subscription at $50 of one new share for every two old shares have been exercised in full.

do not, the former are favored at the expense of the latter. A transfer of equity reminiscent of optional dividends takes place in the manner illustrated in Fig. 20.

Rights entitling to a share at $50 for every two held (1:2 @ $50) were originally issued, but only 40% of the stockholders exercised their rights, so that the actual distribution amounted to 1:5 @ $50. Both the intended and the actual change in the company's financial condition are indicated in diagram I by dotted lines. The next two diagrams contrast the investment of the holder of 40 shares before the issuance and after the full subscription of the rights. At the extreme right (V and VI) the same man's position is pictured before the issuance and after the expiration of the rights, when it appears that he was the only one who exercised them. The other stockholders are symbolized by a block of 60 shares (diagram IV). They lose $1,500 (b) in the book value and $1,000 (m) in the market equity of their 60 shares and these sums are added to the capital of the investor who complied with the company's request. If rights were sold and allowed to lapse by the purchaser, the seller was compensated by the selling price for his loss of equity.

It becomes evident therefore, that changes in the investor's financial condition arising from the receipt, sale or exercise of subscription rights can not be measured nor correctly recorded until after the expiration of the privilege, and even then only, if the company supplies the necessary information regarding the number of shares subscribed. The journal entries given in § 46 will be correct only if all stockholders exercise their rights. It may be advisable to review the problem by translating Fig. 20 into journal entries.

As soon as the 40 rights were exercised, an entry could have been made by assuming that no rights would be allowed to lapse:

Investment No. 2 (20 shares)	$4,333.33	
To Investment No. 1 (40 shares) (t)		$1,333.33
Dividend income (r)		2,000.00
Cash (subscription price P)		1,000.00

The figures were taken from diagrams II and III. If 60% of the rights have lapsed, this entry is incorrect and the figures taken from diagrams IV–VI must be used instead:

Investment No. 2 (20 shares)	$5,166.67	
To Investment No. 1 (40 shares) (t)		$ 666.67
Dividend income (r)		1,000.00
Profit on forfeited book equities (b)		1,500.00
Profit on forfeited market equities (m)		1,000.00
Cash (subscription price P)		1,000.00

The company's diagram on the left shows that the value of the dividend per share was exactly halved, but as the last holders of lapsed rights did not participate, an additional $1,500 in book equities was credited to income by the investor. The size of the profit on market equities appears at first sight to depend upon their original purchase price, because the investor is apt to cling to that figure in accordance with the principle of the closed transaction. As a matter of fact, however, there would be no justification for treating the market equity purchased in the manner indicated in Fig. 20, unless M represented not only its value at the date of acquisition but also the present difference between book value and trend. If the trend has been ascending more or less rapidly than corporate earnings the advisability of a smaller or greater amortization should be considered.

A preliminary record of the sale of 40 rights at $100 apiece would have looked as follows:

Cash (selling price)	$4,000.00	
To Investment (t)		$1,333.33
Dividend income (r)		2,000.00
Profit on sale (not shown)		666.67

The final figures on the other hand would have been:

Cash (selling price)	$4,000.00	
Loss on sale (not shown)	166.67	
To Investment (t)		$ 666.67
Dividend income (r)		1,000.00
Profit on forfeited book equities (b)		1,500.00
Profit on forfeited market equities (m)		1,000.00

Interesting comparisons may be drawn between the entries made and the actual situation. There can be no doubt that the owner of the 40 shares benefited to the extent of $2,500 from the

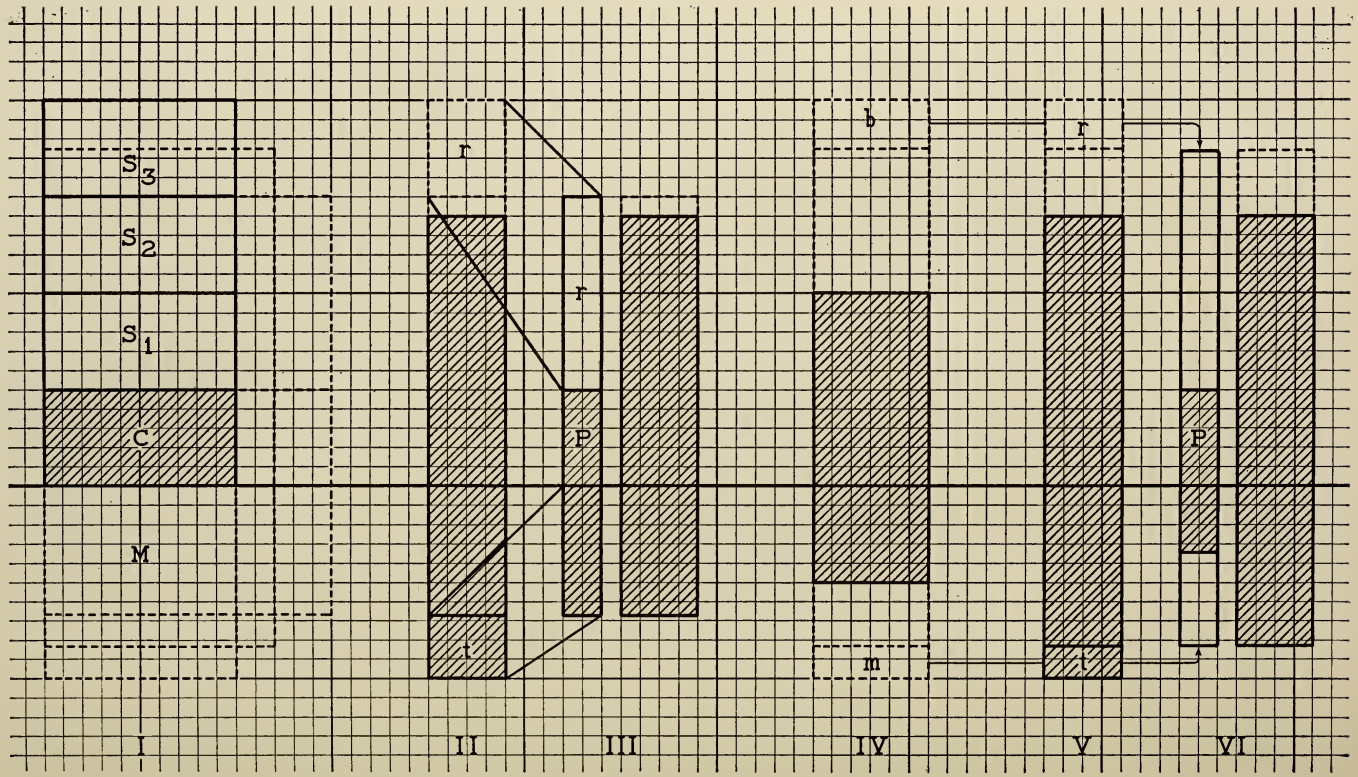

FIG. 20.—INCOMPLETELY EXERCISED POSITIVE SUBSCRIPTION RIGHTS

One horizontal unit = ten shares.

One vertical unit = $10 per share.

The corporate book equities are shown above the axis and the market equities below it.

Investments shaded—earnings unshaded.

I. Corporate capital structure before issuance of rights entitling to subscription of a new share at $50 for every 2 old shares held. Dotted parallelograms on right show changes which will result if rights are exercised in full or only to the extent of 40%.

II. Investor's position before rights have been exercised in full.

III. Investor's position after rights have been exercised in full.
r = dividend income.
t = transfer of market equity from old shares to rights.

IV. Remainder of corporate stockholders (60 shares) whose allotment of rights has lapsed. At what price they originally acquired their shares is irrelevant.

V. Same as III.

VI. Investor's position after it is found that he was the only one who exercised his rights. Portions of the book and market equities of the negligent stockholders, namely *b* and *m*, are transferred to him.

lapsing of others' rights, yet the two subscription entries differ only by $1,500 of income. The extra $1,000 may be found above the 40-share block (diagram VI) of Fig. 20. These earnings were recorded by the first journal entry (see diagram III) but omitted by the second. Comparing the selling entries, the increase in recorded income is only $666.67, although the same $2,500 profit should have arisen. These two figures will harmonize if the $833.33 difference between the profit and the loss on sale is added to the corporate earnings of $1,000, which were once recorded and once omitted. The selling entries are further noteworthy because they show that what appears to be a good selling price at the outset will often prove inadequate in the end. This possibility should be weighed before deciding whether to sell or subscribe.

The value of incompletely exercised negative subscription rights will shift in a somewhat similar manner. Fig. 21 gives an idea of the difference between the full or 40% exercise of a right of 1:2 @ $290.

The company's intention was to increase the book value by $30 a share, thereby obtaining $3,000 of additional capital on 100 old shares and $11,500 on 50 new shares.The second diagram would show the investor's position, if this plan succeeded:

Investment No. 2 (20 shares)	$5,933.33	
To Investment No. 1 (40 shares) (t) Cr. ...	$1,333.33	
Investment No. 1 (40 shares) (a) Dr. ...	1,200.00	$ 133.33
Cash (subscription price of 20 shares)		5,800.00

The holders of the remaining 60 shares, however, either neglected to take notice of the rights or sold them to people in whose hands they lapsed. Accordingly the subscription of 20 shares at $290 increased the book value of a share only by $15 (see Fig. 21, diagram IV). The investor paid $1,500 more than the new book value of $215 for his new 20 shares. Six hundred dollars of this amount (a_1) is an additional investment in the 40 old shares and $900 ($a_2$) is a loss which accrues as a bonus to the 60 shares whose allotment was not exercised.

Beneath the abscissa the situation is the same as in Fig. 20. The penalty for failure to subscribe (m) is $1,000, which is added

to the value of the 20 shares subscribed. The correct journal entry recording the subscription is:

Investment No. 2 (20 shares)		$5,966.67	
Loss in book equity (a_2)		900.00	
To Investment No. 1 (40 shares) (t) Cr.	$666.67		
Investment No. 1 (40 shares) (a_1) Dr.	600.00		$ 66.67
Profit on forfeited market equity (m)			1,000.00
Cash (subscription price of 20 shares)			5,800.00

The sale of 40 rights for $5 each would have resulted in the following record, if all rights had been exercised:

Cash (selling price)		$200.00	
To Investment (t) Cr.	$1,333.33		
do (a) Dr.	1,200.00		$133.33
Profit on sale (not shown)			66.67

Upon final determination of the fact that only 40 rights were exercised out of a total of 100, this entry must be rewritten as follows:

Cash (selling price)		$200.00	
Loss in book equity (a_2)		900.00	
To Investment (t) Cr.	$666.67		
do (a_1) Dr.	600.00		$ 66.67
Profit on forfeited market equity (m)			1,000.00
Profit on sale (not shown)			33.33

Instead of analyzing the accounts in this manner, the stockholder may simply consider that he received $200 for a $66.67 loss of equity, which will enable him to state his profit in one amount of $133.33. Had he neglected to sell the rights, the equity lost would have had to be written off without compensation.

As already mentioned, the treatment of the market premium in Figs. 20 and 21 should be taken only as a sample, not a rule to be followed irrespective of actual conditions.

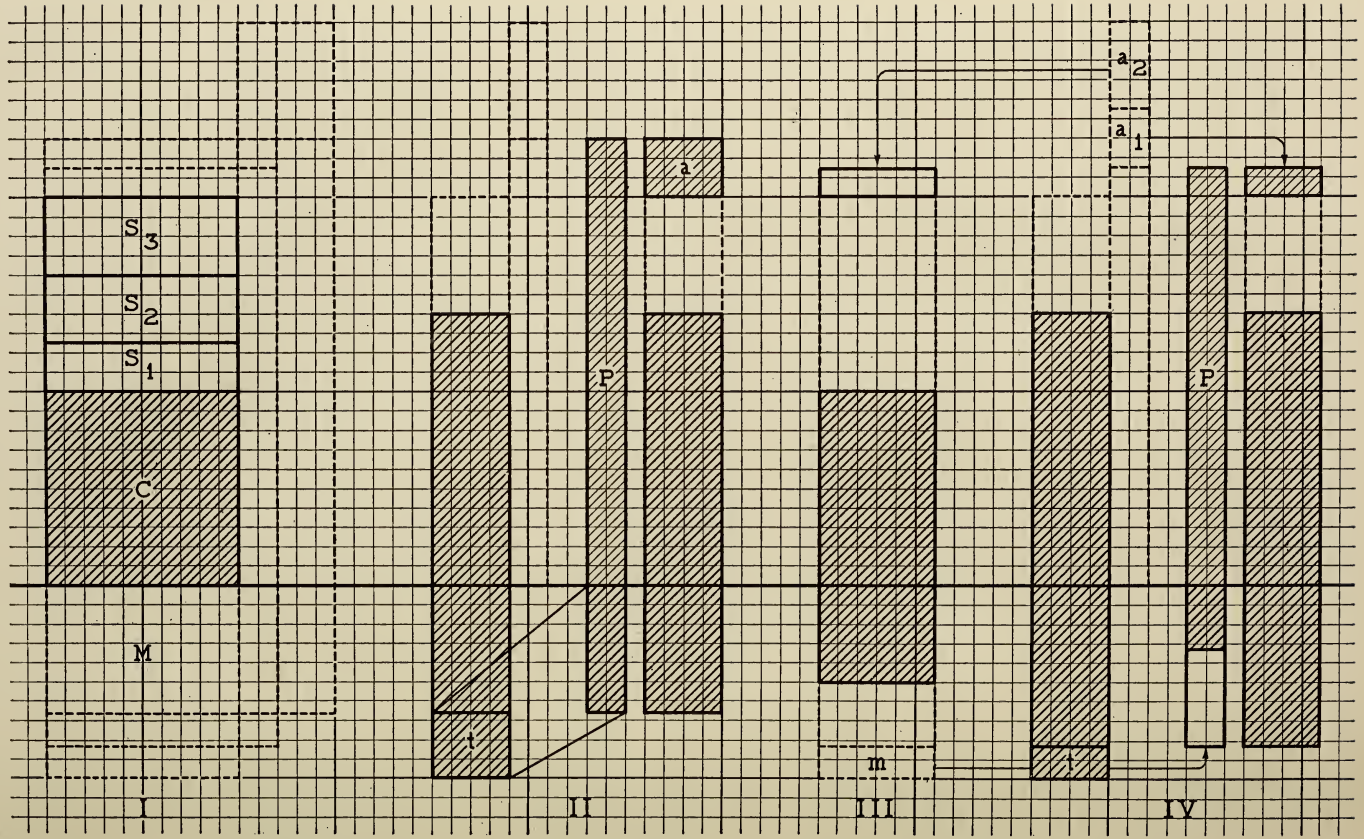

FIG. 21.—INCOMPLETELY EXERCISED NEGATIVE SUBSCRIPTION RIGHTS

One horizontal unit = ten shares.

One vertical unit = $10 per share.

The corporate book equities are shown above the axis and the market equities below it.

Investments shaded—earnings unshaded.

I. Corporate capital structure before issuance of rights entitling to subscription of a new share at $290 for every 2 old shares held. Dotted lines show changes which will result if rights are exercised in full or only to the extent of 40%.

II. Investor's position before (on left) and after (on right) rights have been exercised in full.

III. Remainder of corporate stockholders (60 shares) whose allotment of rights has lapsed. At what price they originally acquired their shares is irrelevant.

IV. Investor's position before (on left) and after (on right) it is found that he was the only one who exercised his rights. Negligent stockholders gain a_2 in book values and lose m in market values. Since subscription price must be lower than market price, $m > a_2$. Book equity a_1 is paid in by subscriber as an assessment on old shares.

§ 49. Subscription rights and the market.

The approximate selling price of a subscription right in the market may be determined by dividing the excess of the market price over the subscription price of a share by one plus the number of original shares required to subscribe a new share.

To illustrate the effect of rights upon the market price of stock it may be assumed that an investor purchases five shares on the day preceding the issuance of rights briefly described as 1 : 5 @ $250. He paid $310 for each of the five shares or $1,550 in all. On the following day, he will receive five rights free of charge, which can be turned in with a cash payment of $250 to obtain a sixth share. The total outlay was $1,800 or an average of $300 a share, which fixes the value of a right at $10. Corresponding to this figure the market quotation of a share ex rights is now $300. The same investment could have been made by waiting another day and purchasing six shares at that price. In fact, it would have been simpler to do that than to have two separate dealings, the second of which is complicated by a certain amount of "red tape."

The conclusion often drawn from the fact that an investor is equally well off, whether he entered the market immediately before or after the issuance of the rights, is that rights have no distributive value such as is evidently inherent in a cash dividend and reluctantly conceded to a stock dividend.[4] The same thing occurs, however, when stock is purchased on the day preceding the distribution of cash or stock. The opening quotation ex cash dividend is lower by the amount which is no longer receivable, and similarly the price of a share ex stock dividend is lower by the amount of the dilution, which can be computed in the same manner as for rights, by adding a subscription price of zero to the value of the old shares and then dividing them by the number of new shares. The argument, therefore, does not prove that distributions of one sort or another have no value; all it does prove is that whatever value they have was paid for by the purchaser and then returned to him on the following day.

Distributions always have a definite value, but whether any portion of that value may be considered income or not is a per-

[4] Cf. C. B. Reeves: Stock Devices Explained. *New York Evening Post,* January 17–24, 1931.

sonal matter, depending upon whether the company has any earnings which the investor failed to record. Any income-value attributed to distributions arises, not because distributions are income in themselves, but because they may represent wealth, the creation of which has not yet been recorded by the investor. In other words, it is the lag between the facts and the records, which leads to the imputation of income to distributions, when in reality only a convenience in bookkeeping routine is involved. Instead of increasing the investment by accumulated earnings and decreasing it again upon receipt of distributions, the value of the latter is credited direct to income.

This will explain why a purchase of stock on the day before the issuance of rights does not result in income. The value of the rights is there, but instead of having been derived from earnings accumulated over a period of time, it was simply paid for, so that a subsequent receipt merely returns what the investor had already recorded. Let us contrast this situation with that of an investor who acquired the five shares a year ago for, say, $300. His records show a total investment of $1,500, which he increased to $1,800 by paying $250. If the apparent gain of $50 is due to a legitimate increase in the assets originally purchased for $1,500 and not merely to a market fluctuation, it is assuredly income. But it is not the rights that are income; they merely induced the investor to make a record of the increase in assets which he might have made without them.

Fig. 2 shows that an issuance of positive rights is generally preceded by a rapid rise in market quotations over a period of several weeks, which about offsets the dilution caused by the distributive value of the rights. Various reasons have been assigned this phenomenon. Those who deny that positive rights have a distributive value comparable to a cash dividend say that it is due in part to misconception and in part to the fact that the effective dividend rate per dollar invested is increased by such rights. It is quite true that an increase in cash income, which is often confused with total income, will tend to enhance the value of stock because it increases the present value of an annuity consisting of the dividend payments, but such a tendency can continue only so long as the distributions are backed by earnings. In the long run, dividends causing a declining trend of book values can not produce a rising market. A comparison of the book-value and

market-value curves in Fig. 2 may lead to the conclusion that the rumors preceding the issuance of rights merely advertise a fact which was well-known but temporarily forgotten, namely, that the company is prospering and expanding. The sudden increase in public attention carries the quotations to a level which they would perhaps have reached more gradually, had the company always remained in the public eye to the same extent. The market value of rights and the behavior of the market quotations of stocks entitling to periodic rights may be better understood after a study of the laws of stock yields which have been briefly outlined in § 38 and are treated mathematically in the appendix.

CHAPTER VII

WARRANTS

§ 50. The speculative nature of warrants.

Warrants were devised as means to discount the future. The desire or necessity of resorting to such a step may spring from various causes connected with corporate management. Usually issues of senior securities are made more attractive by promises of future profits, which means that money is received for immediate use at more favorable terms than would have been possible without recourse to the device. The gradually developing technique of "trading on the equity" (*i.e.* of enhancing the yield of common stock) was responsible for an enormous increase in the demand for senior capital, and the market responded by stiffening terms, so that concessions had to be made by offering a participation in profits. In addition to warrants attached to bonds or preferred stock in furtherance of such purposes, there is the independent issue of warrants, which can only be described as a short sale predicated upon the theory that future profits look their rosiest during a speculative boom and can therefore be sold for more than they are worth. Warrants in payment of promoters' services are also frequent.

A warrant usually entitles to the subscription of a share at a price in excess of its current market value so that the immediate exercise of the option would not be profitable. If, however, expectations are realized, the value of the stock will in time overtake the subscription price. As soon as quotations have risen beyond the level marked by the sum of the subscription price and the price paid for the warrant, a market equity accrues to the holder of the privilege, which may be cashed at any time before expiration. From this point on, there is no difference between a subscription right and a warrant, except that the term of the former is often so short that it does not pay to hold it for profit. Whenever the expiration date of a right is sufficiently distant, the development of stock quotations will offer equal possibilities for both rights and warrants.

To compare the chances of profit commanded by a share of stock and by a warrant a concrete example may be introduced. A share of stock is selling for $100 at the time a warrant is issued for $20, entitling to subscription at $140. No profit can apparently be realized by the holder of the warrant until quotations reach $160, whereas the stockholder has gained $60 by that time. From this level upward, the warrant and the stock might be expected to move together; whether the price of the stock rises ten points or a hundred, each ought to gain an equal number of dollars, although the capital invested in the warrant is barely one-fifth of what the stock cost.

When the warrants were issued, the owner of $100 had the choice of buying either one share or five warrants. If he chose the former and sold out at 300, his capital was increased to $300, whereas in the latter event he would have accumulated $800. The former represents a profit of 200% and the latter of 700%. By selling the warrants at 160, which is equivalent to selling the stock at 300, 2⅔ shares could have been purchased from the proceeds as compared to the single share originally acquired. It is evident that in such circumstances a warrant is preferable to the stock as a lucrative investment.

The seemingly enormous earning power of warrants is, of course, balanced by a "losing power" of equal proportions. When $20 was paid for one warrant, the future market price of the stock was a mere matter of conjecture. If quotations had failed to pass the $140 market before expiry, the entire investment in the warrants would have been irretrievably lost. Even if a profit is made, it may easily represent a lower return on the investment than if stock had been purchased instead. For instance, if one investor had bought a share of stock and another five warrants and the highest quotation had been $165, the former would have made a profit of 65% on his capital and the latter but 25%. It may be observed then that, whereas it is more profitable to purchase warrants under certain conditions, the stock is a better investment under others. The investor must weigh possibilities carefully to determine what price he can afford to pay for warrants.

§ 51. The fair value of warrants.

The total market value of the number of rights entitling to the subscription of a share is the difference between the market price ex rights and the subscription price. If it were desired to determine the price of issue of a warrant in the same manner, the result would be a negative quantity. Nevertheless it is common knowledge that such warrants may be sold for a positive consideration. Returning to the example in the preceding paragraph and assuming that the warrants will increase the number of shares outstanding by 25%, the value of a warrant would be

$$\frac{4 \times \$100 + \$140}{5} - \$140 = -\$32$$

The actual selling price of $20, therefore, corresponds to a premium of $52. The question that must be uppermost in the would-be purchaser's mind is whether such a premium is justified or not.

Theoretically, the value of a warrant is the present value of the difference between the market price and the subscription price of the stock on the date on which it is exercised. The essential element in this definition is the discount rate, which ought to be commensurate with the risk. The fairest rate is evidently the same as that determining the present price of the stock, which is likewise merely the discounted value of future payments. To find that value of a warrant which will yield the same final profit as if a like amount had been simultaneously invested in the stock, attention must be given to the ratio of the future capital to the present capital. This ratio ought to be the same whether the stock or the warrant is purchased. By solving an equation set up in this manner, the following answer is obtained:

The fair present value of a warrant is that proportion of its final value which the present market price of the stock bears to its final price.

The final market price of the stock on the day the warrants are exercised can only be estimated, but the procedure will nevertheless furnish a fairly close check upon the present market quotation of the warrant. If preferred, the latter price may be inserted into the equation and the future market price of the stock considered the unknown element instead. In that event the solution will read as follows:

Divide the product of the present market value and the subscription price of the stock by the difference between the present market prices of the stock and the warrant. The result is that future market price to which the stock must rise in order that investments in either the warrant or the stock may show an equal profit.

Applying these formulæ to the original example, the fair present value of the $20 warrant will be $15.15 or $53.33 for final stock quotations of $165 or $300 respectively. The final market value of the stock at which the $20 investment would yield a profit equal to that of the stockholder is $175. At that price $75 could be realized on the stock and $15 on the warrant, both amounts equalling 75% on the respective investments. By comparing the price at the balancing point with the expected performance of the stock, it is easy to decide whether the stock or the warrants are more attractive.

Bonds or preferred stock with warrants attached should not be purchased without an effort to determine the price charged for the warrant privilege. An ideal opportunity for comparison is furnished if the company has outstanding securities of the same description without warrants. In that case the difference in quotations is the cost of the warrant, which should be promptly subjected to the tests outlined. If such a happy coincidence is absent, the investor ought to compare the securities offered with those of other companies having a similar standing.

§ 52. Warrants and the corporate dividend policy.

The italicized formulæ of the preceding paragraph are correct only if the company has paid no dividends. A dividend will have the effect of reducing the final market price of the stock on the day the warrants are exercised, but it will not reduce the stockholder's total wealth. Whereas, therefore, the yield of the warrants is reduced by a dividend decreasing its final surrender value, the yield of the stock has remained unchanged, although it is no longer measured by the difference between cost and the final market price. To meet this change, the two formulæ must be revised as follows:

The fair present value of a warrant is that proportion of its final value which the present market price of the stock bears to the sum obtained by adding to its final price all dividends paid during the life of the warrant.

Add the product of the present market value and the subscription price of the stock to the product of the present market value of the warrant and the dividends payable. Divide that sum by the difference between the market values of the stock and the warrant. The result is that future market price to which the stock must rise in order that investments in either the warrant or the stock may show an equal profit.

Assuming that two cash dividends of $5 each have been paid, the original problem may be recomputed. If the stock rose to $165 in the absence of a distribution, it would have attained only $155.

$$\frac{100}{155 + 10} \times (155 - 140) = \$9.09$$

Similarly in the case of the more sanguine estimate the quotation would have been $290, instead of $300.

$$\frac{100}{290 + 10} \times (290 - 140) = \$50.00$$

The $10 loss in final surrender value has cost the warrant-holder $6.06 and $3.33 respectively in present values. The balance point has also been displaced. Its new level is:

$$\frac{(100 \times 140) + (20 \times 10)}{100 - 20} = \$177.50$$

If the stock is quoted at that price, the total profit of each investor is 87.5%.

As the declaration of dividends changes the value of warrants, it is inadvisable for the investor to purchase any option, whether in the form of a warrant or not, in the absence of a formal contract limiting the dividends which the company is authorized to pay. Arrangements for an equitable adjustment of the subscription price to offset the dilution caused by distributions are an alternative safeguard.

The problem of providing adequate protection for warrants is surrounded by many difficulties, most of which are connected with the computation of the value of a distribution. Protection against dividends, the value of which can be unequivocally determined to the satisfaction of both groups of investors, is a com-

paratively simple matter. A subscription price is agreed upon either on a no-dividend or on a limited-dividend basis. If the company cares to pay additional dividends, the entire excess over the stipulated amount is deductible from the subscription price.

The formula for finding the fair present value of unprotected warrants will also apply to the protected warrant, the only change being that its surrender value can no longer be influenced by dividend payments. It is fixed as the difference between the total increase of wealth attributable to a share during the life of the warrant and the nominal subscription price.

The formula for finding the balancing point of protected warrants is the same as that for warrants in the absence of dividends, except that the aggregate dividends paid during the life of the warrant must be deducted from the final result.

The fair value of the same $20 warrant, protected against dilution by the two $5 cash dividend payments, can be computed as follows:

$$\frac{100}{155+10}(155+10-140)=\$15.15$$

or for the second estimate:

$$\frac{100}{290+10}(290+10-140)=\$53.33$$

Both results are the same as they would have been had the company paid no dividends at all, because in that event the final market quotation of the stock would have been higher by the aggregate of the dividends now paid. The balancing point of the warrant and the stock is also identical with that in the absence of dividends, except that $175 no longer represents the final market price but rather the sum of that quotation and the dividends paid.

$$\frac{100\times 140}{100-20}-10=\$165$$

If the stock reaches this level the stockholder has a total profit of $\$65+\$10=\$75$, whereas the warrant holder, having received a credit of $10 toward the subscription price, likewise gains $15, as he would have done in the absence of dividends. The conclu-

sion may then be drawn that the value of a warrant protected in this manner is entirely independent of the corporate dividend policy, provided the value of the dividends can be computed in a satisfactory manner.

§ 53. Protecting warrants against distributions of equity.

Market practices governing the computation of the dilution caused by corporate distributions are fairly well established. Thus, a cash dividend reduces quotations by its amount, whereas the effect of subscription rights and stock dividends is found by reallocating the value of the old symbols of equity plus subscriptions received (if any) to the new symbols. Since warrants are concerned essentially with market values, these practices may be accepted as the basis of protective measures.

The reduction in the market value of a share resulting from a distribution may be measured in two ways. There is the absolute difference of a certain number of points between the closing quotation and the opening price "ex" the distribution, and there is the relative difference expressed per centum of its base. Which is a better indicator of the dilution?

To afford protection against cash dividends the absolute difference was chosen, which may perhaps serve equally well as to dividends in property or evidences of indebtedness. When distributions of equity are considered, however, it becomes apparent that the number of points by which quotations will drop depends upon the level they have reached. In times of inflation a stock dividend may cause a drop of three times as many points as during a depression, merely because quotations can easily fluctuate in the same proportion. If the terms were the same, the dilution must have been the same in each instance; whether the market touched top or bottom around the dividend date has no influence upon the subsequent behavior of the diluted shares. It appears therefore inequitable to protect a warrant against equity distributions by crediting the drop in quotations against the subscription price. Such a course of action would favor either the stockholders or the warrant-holders depending upon the point in the cycle at which the warrants are exercised. By issuing stock dividends only during depressions, the dilution could be understated, because warrants are always surrendered as near the top as possible.

To express the dilution of the stock per centum will often become complicated. Taking the case of the company in Fig. 3 as an illustration, the dilution caused by quarterly stock dividends of 2.5% during the two-year life of a warrant would be:

$$1 - \frac{1}{1.025^8} = 17.93\% \text{ approx.}$$

Upon expiration, the warrant should therefore entitle to the subscription of $1 + \frac{.1793}{.8027} = 1.2184$ shares at the price originally stipulated for a single share.

Another example may be taken from Fig. 2. The dilution caused by the rights was computed in accordance with Federal income-tax regulations as 4.2136% in 1926 and 7.0095% in 1928. Supposing that protected warrants entitling to subscription at $150 had been outstanding for the three years ended December 31, 1928, the dilution would have been obtained by the following procedure:

$$1 - (1 - .042136) \times (1 - .070095) = 10.93\% \text{ approx.}$$

The warrant should therefore entitle to the subscription of $1 + \frac{.1093}{.8907} = 1.1227$ shares. This number of shares have paid the following cash dividends:

$$\begin{aligned} 1 \ @ \ \$2.25 &= \$\ 2.25 \\ 8 \ @ \ 2.25 \left(1 + \frac{.042136}{.957864}\right) &= \ 18.79 \\ 3 \ @ \ 2.25 \left(1 + \frac{.1093}{.8907}\right) &= \ 7.58 \\ &\overline{\$28.62} \end{aligned}$$

The subscription price of 1.1227 shares should accordingly be $121.38.

At the time of its issuance on January 1, 1926, when the stock sold at 143, this imaginary warrant would have been worth

$$\frac{143}{1.1227 \times 192 + 28.62} (1.1227 \times 192 - 121.38) = \$55.15$$

because Fig. 2 shows that the market value of a share at December 31, 1928 was approximately $192.

If the investor had paid more for it, he would have obtained a lower return on his investment than by purchasing the stock. (N. B. The surrender value of the warrant is here computed as the difference between the final market quotation of the stock and the adjusted subscription price, instead of the difference between the total wealth attributable to a share and the nominal subscription price of $150. Each method will yield the same answer.) The same warrant without protection against regular dividends would have had a fair value of

$$\frac{143}{215.56}(215.56 - 150) = \$43.49$$

These results disregard interest on cash dividends, which should also be computed for greater accuracy.

§ 54. Warrants and the stockholder.

Whereas the holder of warrants is protected against the stockholder, the latter has to rely on his voting power to protect him from dilution caused by the issuance of warrants. Such a dilution is all the more dangerous because it is not immediately noticeable but occurs gradually, having the same effect as if corporate earnings had failed to materialize in the amounts expected.

When stock is purchased, the effect of outstanding warrants upon the progress of the contemplated investment is one of the most important things to be investigated. An estimate of corporate earnings divided by the number of shares outstanding at the time of purchase will give an utterly false impression. Perhaps the best method of forestalling disappointment is that of constructing a simple diagram with annual layers of earned surplus and market appreciation. By extending the horizontal dimension of those areas to cover not only the number of shares outstanding but the entire number of profit-sharers on each level, their height is reduced and an undistorted forecast is obtained of the appreciation which may be expected from the stock. (See Fig. 23 described below.)

The influence of warrants upon the value of a specific block of stock is demonstrated in Fig. 22 under the double theory of in-

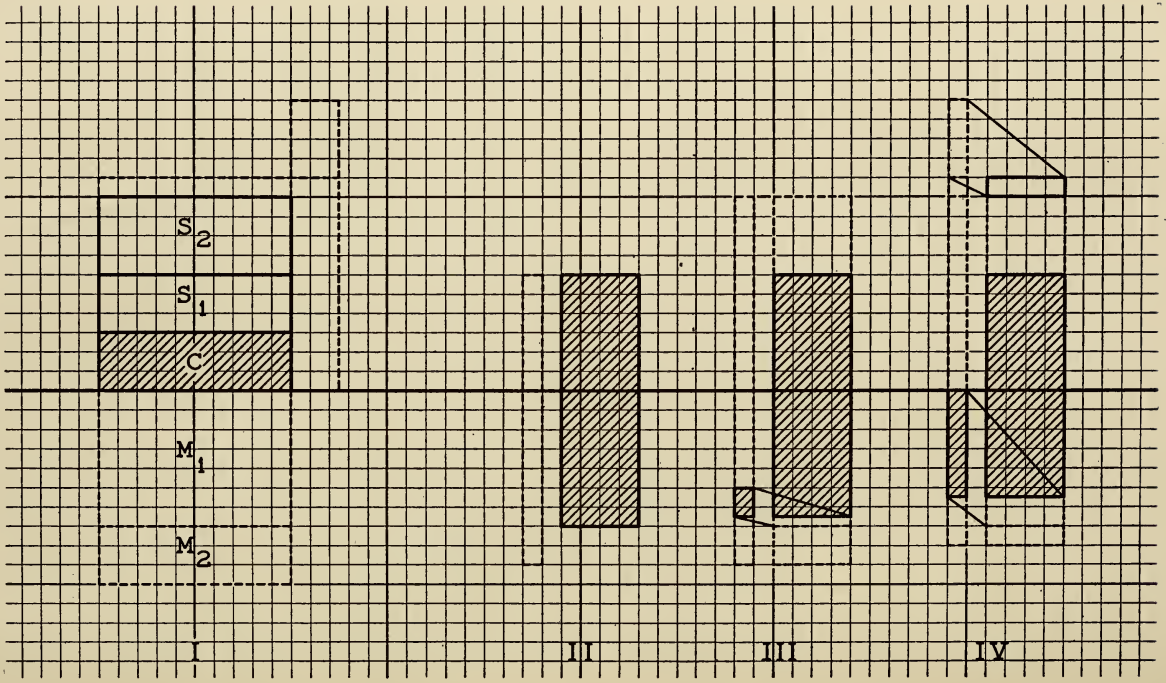

FIG. 22.—UNPROTECTED WARRANTS AND THE STOCKHOLDER

One horizontal unit = ten shares.

One vertical unit = $10 per share.

The corporate book equities are shown above the axis and the market equities below it.

Investments shaded—earnings unshaded.

I. Corporate capital structure before warrants entitling to subscription of a new share at $150 for every four shares held have been exercised. Dotted lines show similarity of warrants and negative subscription rights.

II. Position of investor at the date of purchase. Forty shares have been acquired @ $130. Surplus layer S_2 and market premium M_2 do not exist as yet, but warrants are already outstanding. Dotted parallelogram on left shows 10 warrants overhanging 40 shares. Warrants are still devoid of any book or market equity.

III. Position of same investor, after accrual of S_2 and M_2. Warrants suspended from top of book equity have diluted market equity of 40 shares.

IV. Position of same investor just before warrants are exercised on their date of expiry. As in the case of the negative subscription right the stockholder gains in book equities, but loses more in market equities.

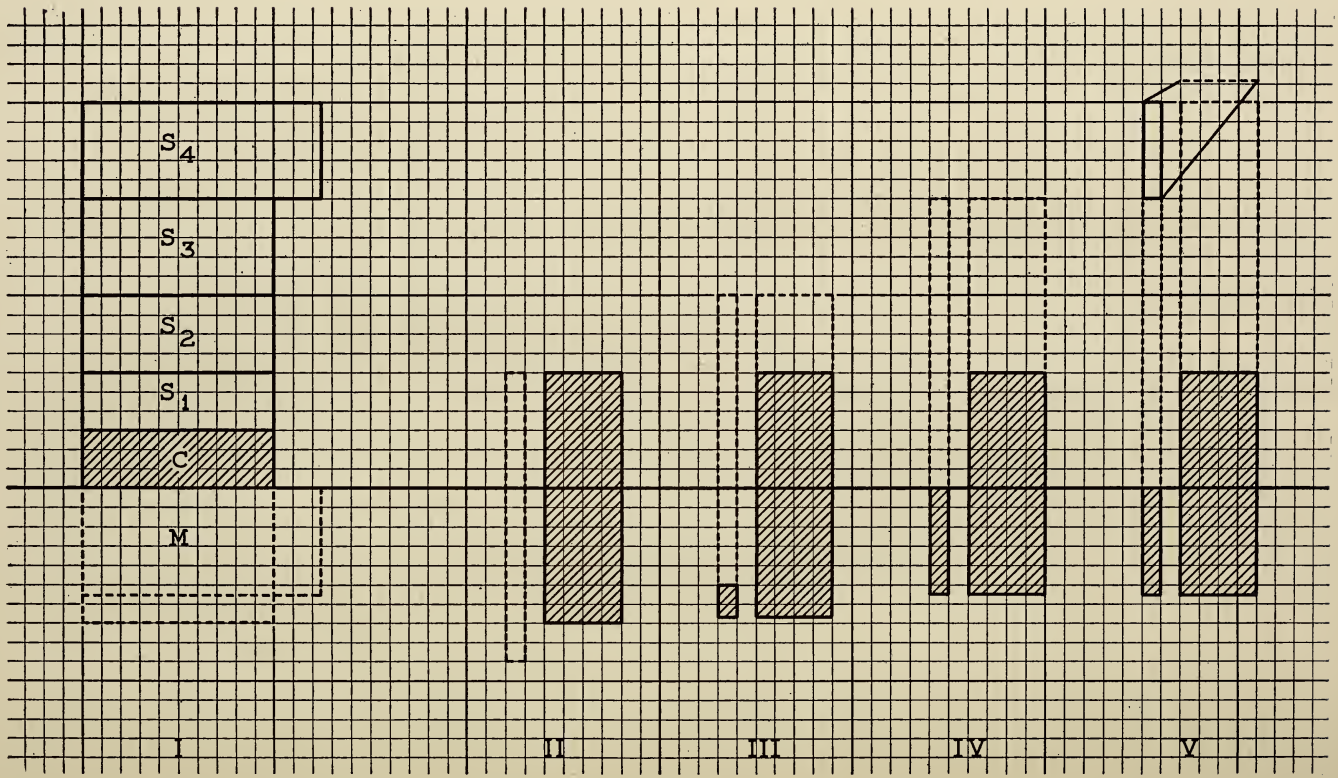

FIG. 23.—UNPROTECTED WARRANTS AND THE STOCKHOLDER

One horizontal unit = ten shares.

One vertical unit = $10 per share.

The corporate book equities are shown above the axis and the market equities below it.

Investments shaded—earnings unshaded.

I. Same as I of Fig. 22, but assuming that the warrants have a four-year life and are not exercised until the end of that period.

II. Same as II of Fig. 22.

III. Same as III of Fig. 22.

IV. Investor's position two years after acquisition of stock. Warrants have been outstanding for three years and have diluted entire market value of stock.

V. Position of same investor three years after acquisition of stock, just before four-year warrants expire. In addition to a market equity, the warrants have also acquired a book equity and thus became similar to a positive subscription right.

vestment advanced in this study according to which any purchase of stocks involves the two distinct steps of acquiring a book equity and a market equity. Twenty-five warrants entitling to subscription at $150 were issued immediately upon organization of the company with a paid-in capital of $30 a share. After the surplus layer S_1 had been earned, the stockholder acquired his 40 shares by paying $60 for the book equity and $70 for the market premium (M_1) of each share. The proportionate number of warrants overhanging his holdings is ten. They may best be pictured by suspending the subscription price of $150 from the level marked by the book value of a share (second diagram). At the time of purchase no dilution whatever had taken place, because the market price of the stock was below the subscription price; as soon, however, as quotations pass $150, the transfer of equities begins. By the end of the company's second year, which is the stockholder's first, the market price of the stock has risen to $190 (third diagram). The increase of $60 a share is caused in part by the surplus layer S_2 and partly by an additional premium acquired in the market. In the absence of warrants, this additional premium would have amounted to $30 a share ($M_2$), bringing the total premium to $100, and therefore the total market value to $200. The warrants, however, are entitled to a one-fifth interest in the excess of the market value over $150, so that the actual market quotation could reach only $190. At this date, the dilution amounts to 40 $\times$ $10 = $400, of which diagram III shows only $160 as a recorded loss, inasmuch as the existence of the market premium M_2 has never been recognized by the investor. Although the subscription price is still in excess of the book value of the stock, it will already be profitable to exercise the warrants. Diagram IV of Fig. 22 assumes that the date of expiry is at hand. As the entire subscription price is paid to the company, the dotted bar representing it is lifted above the axis. This causes an additional dilution of $400 or a total of $800 below it, which is partly offset by the $400 increase in book values occurring in exactly the same manner as if a negative right had been exercised. (See Fig. 18.) The actual dilution is $400, whether the warrants are exercised or not. The recorded loss due to the warrants is also unchanged, since a $160 loss in the market premium purchased equals a $560 loss offset by a $400 gain in book equities.

Fig. 23 is based upon the supposition that the warrants had a

four-year life. In that event they would not have been exercised at the end of the second year, since further corporate profits and market appreciation may be shared without putting up additional capital. The third year closed with a book value equal to the subscription price, so the $70 market premium originally purchased was diluted to $56 a share. That is the maximal reduction which the warrants could cause in the stockholder's capital. During the fourth year only a dilution of corporate earnings takes place, reducing the yield of the investment. The $500 equity of the ten warrants in the surplus layer S_4 is taken from the profits which would have accrued to the stock, the book value of which is only $200 instead of $212.50.

§ 55. Protected warrants and the stockholder.

The effect of protected warrants upon the stockholder is similar, except that the subscription price is lowered by every dividend paid and that therefore the dilution of earnings begins at an earlier date. Fig. 24 is copied from Fig 23, but it is assumed that the company's earnings during each of the last three years were higher by $4,000 than would appear from an inspection of the corporate diagram. Three cash dividends are the reason for this discrepancy. Each one lowered the original subscription price of $150 by $40. The dividends received by the stockholder are shown at the extreme right.

The four stock and warrant diagrams of Fig. 24 may now be compared with the corresponding diagrams in Fig. 23. The first pictures the situation on the date of acquisition, so there is no change. The second discloses the shrinkage of the subscription price to $110, calling for an additional reapportionment of the $70 market premium purchased, which is accordingly lowered to $58 a share instead of merely to $66. Up to this point, the book value of the stock has suffered no dilution, so the surplus layers S_1 and S_2 are still in their original positions as shown by Fig. 23. During the next year the subscription price shrinks another $40, which must be added to the $24 participation in corporate earnings above the $110 level to compute the dilution of earnings, which amounts to $(40 + 24)/4 = \$16$ a share. The last year brings a further dilution which causes all surplus layers to assume their final positions, shown on the left of Fig. 24. Whereas, without the war-

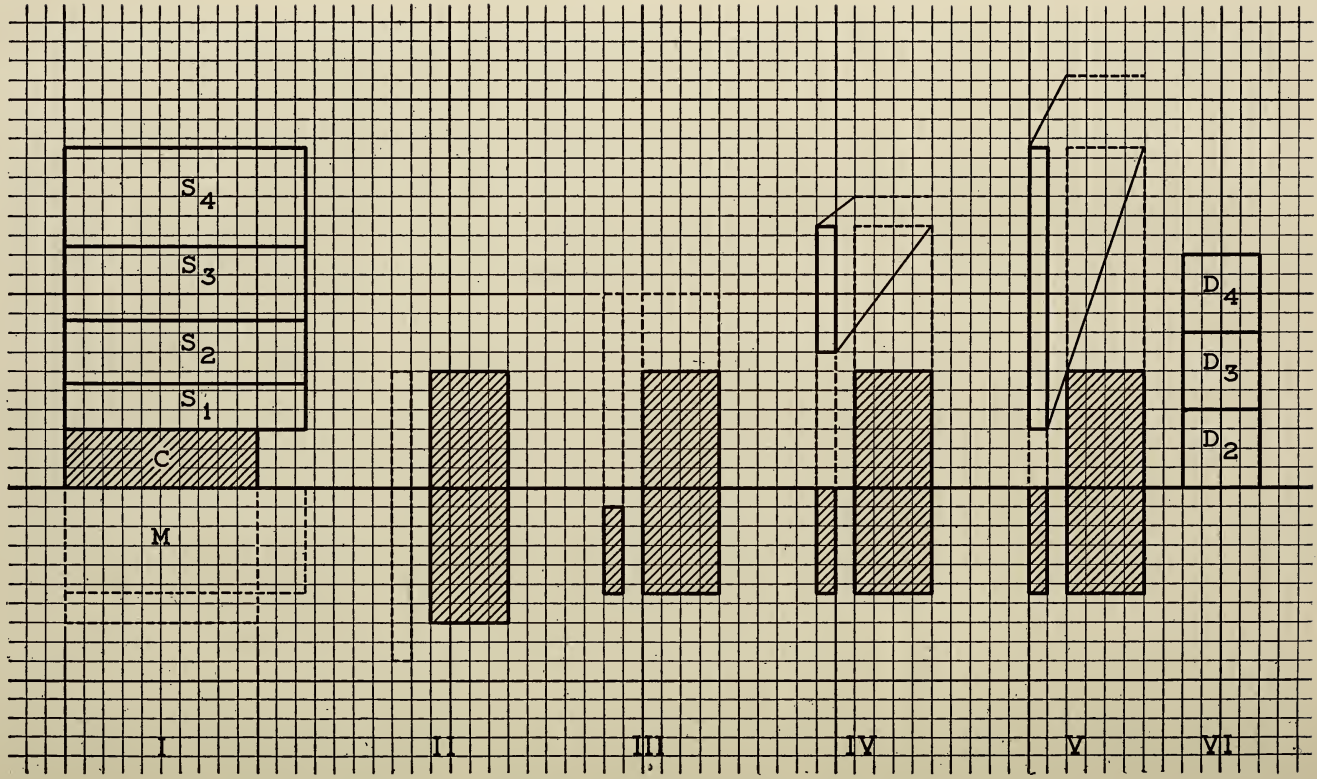

FIG. 24.—PROTECTED WARRANTS AND THE STOCKHOLDER

One horizontal unit = ten shares.

One vertical unit = $10 per share.

The corporate book equities are shown above the axis and the market equities below it.

Investments shaded—earnings unshaded.

I. Corporate capital structure just before four year warrants protected against dividends are exercised. For the purpose of following successive stages, diagram I of Fig. 23 should be used.

II. Same as II of Figs. 22 and 23.

III. Same as II of Figs. 22 and 23 except that the subscription price warranted has been reduced by $40, corresponding to a $40 dividend declared by the company. See D_2 in diagram VI.

IV. Same as III of Figs. 22 and 23 except that the subscription price warranted has been reduced by $80, corresponding to two $40 dividends declared by the company. See D_2 and D_3 in diagram VI.

V. Same as IV of Figs. 22 and 23 except that the subscription price warranted has been reduced by $120 corresponding to the total of three $40 dividends declared by the company. See D_2, D_3 and D_4 in diagram VI.

VI. Dividends received by holder of 40 shares in successive years.

rants, corporate earnings would have increased the book value of a share to $212.50, that figure was reduced to $200 by the unprotected warrants illustrated in Fig. 23 and to $176 by the protected warrants of Fig. 24.

The cost of protection against distributions of equity can be computed in the same way, so long as the drop in quotations is expressed in points. If such a procedure is rejected in favor of measurement by rates, the exact dilution caused by each dividend can not be determined until the warrants are exercised. Approximations could be used, however, subject to final adjustment. As the market price of the stock is adjusted automatically, the stockholder's only concern from the bookkeeping point of view is to write off that portion of the market premium purchased which corresponds to the ratio of the number of warrants to the number of shares plus warrants. The dilution of earnings attributable to the warrants will not confront the stockholder in the form of a loss but is merely shown by the retarded progress of his investment.

CHAPTER VIII

REGULATION v. EDUCATION

§ 56. Various regulatory ideas.

The desirability of regulation arises from the fact that although distributions always have a definite cash value to the investor, this value seldom equals the increment of wealth which he may spend without impairing his original capital. To safeguard investors against the dangers which might arise from considering all distributions as income to the full extent of their market value, various rules have been formulated at one time or another. Some of these rules disregard corporate accounting procedure altogether while others endeavor to establish at least some degree of correspondence between the records of the company and those of the stockholder.

Four of the theories and recording methods mentioned in preceding chapters are worthy of further consideration:

1. The Federal income-tax method.
2. The arbitrary-value (New York Stock Exchange) theory,
3. The book-value theory,
4. The stock-stabilization theory.

The first two are well known, the third is not generally accepted, but is merely developed here on the basis of fragmentary suggestions found in accounting literature; the fourth is believed to be entirely new.

§ 57. The Federal income tax method.

The rules used for the computation of taxable income limit income-realization to the receipt of dividends in cash, property and evidences of indebtedness and to profits on sale. Stock dividends or rights are said to effect only a change in the number of paper certificates evidencing corporate equities and therefore their sale can result in income only to the extent that the selling price exceeds the pro-rata cost. This is the rule upheld in the famous

Eisner v. Macomber (252 U. S. 189) and *Towne v. Eisner* (245 U. S. 418) decisions.

As a protective measure these rules are ineffective in some respects and too stringent in others. Thus they do not guard against impairment of capital through the distribution of corporate earnings accumulated during the period preceding the purchase of the stock by the investor nor against the dilution of equities through the issuance of bonus shares or other distributions and subscriptions not made pro-rata. On the other hand they prevent the investor from realizing the greater part of the increase in the value of his investment from year to year, because expansion makes corporations reluctant to part with a substantial portion of the wealth derived from their earnings. Upon final sale of the stock, the increments of many years are realized in one lump sum. Apart from the injustice which may result from progressive rates of taxation, such a method makes it impossible for the investor to live in a style commensurate with his wealth.

§ 58. The arbitrary-value theory.

The theory sponsored by the New York Stock Exchange has already been described in § 31. The main idea is to limit income-realization to that portion of corporate earnings which the corporation claims to have distributed, thus creating a correspondence between the company's undistributed earned surplus and the investor's unrealized income. All distributions are considered income immediately upon receipt, but only up to the amount charged to earned surplus by the issuing company. Any additional value attaching to certain forms of distributions must be considered a return of capital, *i.e.* a transfer of cost from the old symbol of investment to the new symbol distributed. Further income can arise only in the form of a profit on sale to the extent that the selling price exceeds the pro-rata cost so adjusted.

The idea of establishing a correspondence between the corporate surplus account and the investor's unrealized income is quite valuable; in practice, however, only a small part of the ground has been covered by official rulings. Thus the theory is still open to the same criticism as the Federal income tax method. It fails to guard against impairment of capital through the distribution of corporate earnings accumulated prior to the acquisition of the

stock and against the dilution of equities through the issuance of bonus shares and other distributions not made pro-rata.

These defects could be eliminated by additional rulings based upon the discussion in § 31 and § 42 (Figs. 12 and 17), but even if that were done, the income-realization permitted would be neither uniform nor adequate. To obtain uniformity it appears necessary to prescribe how much the issuing company shall charge to earned surplus when making a distribution. Two cautious steps in this direction are quoted in § 31 and § 35. A list of suggestions advanced at one time or another is given in J. M. B. Hoxsey's article "Accounting for the Investor." [1]

Apparently, the greater the amount per share which the company is obliged to charge to earned surplus upon distributing symbols of equity, the greater the income-realization permitted to the investor and therefore the greater the relief from the income-tax rule. That is true in an individual case; in the long run, however, distributions will be governed by legal limitations [2] or by the company's desire to retain a substantial balance in its earned surplus account. The more it must charge to earned surplus to record a stock dividend, the less it will distribute. Ultimately, therefore, the investor is equally well off under all rules. He can either realize a small amount per share on liberal distributions or a greater amount on smaller ones. All rules are thus on a par with each other and there seems to be little merit in requiring a company to conform to any of them.

§ 59. The book-value theory.

The diagrams presented and described in preceding chapters are based upon the book-value theory, so called because it is derived from one of the many rules suggested by accounting writers, namely, that a corporation ought to record stock dividends by charging their book value to earned surplus.

No matter what corporations choose to call their distributions, the amount of the corporate equity which the investor liquidates when selling any distribution is its book value, which remains un-

[1] *The Journal of Accountancy,* October, 1930, pp. 265–266.

[2] See J. L. Weiner and J. C. Bonbright: The Theory of Anglo-American Dividend Law, 28 *Columbia Law Review* 1046; 29 *Ibid.* 461; 29 *Ibid.* 906, and 30 *Ibid.* 330.

affected by transfers from surplus to capital stock made for the sake of record. Melons, split-ups, stock dividends said to be out of current earnings and subscription rights alike represent corporate equity to the extent of the difference between the book value of a share immediately before and after the distribution (subscription). And this is really the crux of the problem. Justifiable as it might seem to compel a corporation to record all its distributions at their book value instead of at arbitrary figures dependent upon irrelevant or misleading descriptions, considerations or intentions, there is no real need for placing either the investor or the corporation under tutelage. If the company conforms to standard accounting procedure, the general rule for the guidance of the investor can be summed up in four words: "Watch the book value!"

The rule that the stockholder's investment has been impaired whenever its total book value becomes less than it was at the time of acquisition provides effective protection against impairment of capital through the distribution of corporate earnings accumulated prior to purchase and against the dilution of equities through the issuance of bonus shares or other distributions and subscriptions not made pro-rata. In other respects the rule can be used exactly as the Stock Exchange rule. The only difference is that whereas, under the Stock Exchange rule the phrase "earnings distributed" is subject to arbitrary interpretation by the company, the book value rule gives it a uniform meaning. *Distributions* are defined as that portion of the total book equity, which is transferred from the original symbol of investment to the newly distributed symbol, whether that be a cheque, a right or an additional stock certificate. *Earnings distributed,* in turn, equal that fraction of the entire book value of a distribution which will not reduce the book value of the old stock certificate below what it was at the date of acquisition. Market equities attaching to distributions in addition to their book values can again be considered a return of capital.

§ 60. The stock-stabilization theory.

The regulatory theory of stabilized stock can be derived from the original concept of par value. When corporate stocks as symbols of equity were first introduced, the amount of wealth represented by them was conceived to be equal to the value contributed

to the company and this amount was stamped upon the stock certificate as its par value. Since such joint stocks were not originally considered permanent investments, the question of the reinvestment of earnings did not come up until later. In the early days, it was assumed that the entire profit of an "adventure" would be distributed at convenient intervals and the capital returned at the end. The competition between the English and Dutch East India Companies first brought the advantages of permanent capital into bold relief; and it is at this point that the difference between book value and par value first becomes important.[3] With the general adoption of the accrual method of keeping books a cash surplus and an earned surplus were no longer synonymous, and the book value could no longer be reduced to par by distributions of cash, even if it had been desirable to do so. At a still later period, the issuance of stock for property other than cash was made permissible, and the era of stock-watering began. It tended to throw further discredit upon the concept of par until, not long ago, it was declared to be a fiction pure and simple, and further adjectives like "harmful," "misleading," "meaningless," etc., were heaped upon it to ensure its downfall and the advent of stock without par value.[4]

Actually, the lack of significance justly ascribed to present par values exists only because no attempt had ever been made to develop the original idea of par. Since par originally represented the value of the asset paid in and since standard accounting procedure measures the subsequent changes in this investment (see § 3), it may be argued that an increase due to operations should be reflected by the issuance of additional shares, in order that a stock certificate may always have the same volume of assets behind it as at the outset. In other words, it is here claimed that par value was prevented from performing a very useful function and permitted to fall into discard, although it could easily have been developed into a powerful weapon of regulation by requiring that stock dividends or cancellations be declared to adjust the difference between book value and par value at the end of each accounting period.

[3] See W. R. Scott: The Constitution and Finance of English, Scottish and Irish Joint Stock Companies to 1720. The University Press. Cambridge, 1912.

[4] Cf. C. W. Wickersham: A Treatise on Stock Without Par Value. M. Bender & Co. Albany, 1927.

It must be understood that this method of making corporate earnings intelligible to even the most unsophisticated investor would not lead to equal market quotations for equal book values of different stocks. It would, however, facilitate comparison between them and emphasize the fundamental difference between a dollar engaged in production and a dollar in the market. The former is at work under special conditions which enable it to produce earnings at an individual rate while making room for new investment at another individual rate depending upon the success of the enterprise. The market-dollar, on the other hand, merely has an expectation of earning the money rate and expanding at the same rate. Standard accounting procedure, as applied to the corporate books keeps count of the dollars engaged in production, whereas the task of the security markets is to find the number of market-dollars which equal a single production-dollar in earning and expanding power.

I do not expect anything like unanimous approval for my proposal to readjust book values currently to par, but I believe that the consideration of a hypothetical law to that effect sheds enough light upon the nature of corporate distributions to make the discussion of its probable consequences worth while.

The main provisions of such a law might well be the following:

1. The stock of any corporation listed on public exchanges or sold through the efforts of promoters, salesmen and other intermediaries shall have a par value.
2. An independent audit of the books and affairs of such corporations shall be made at the end of each accounting period by persons properly qualified and licensed.
3. Before the first day of the third (?) month following the close of the company's accounting period the number of shares formerly outstanding shall be increased or reduced in such a manner that the product of par value and the number of shares shall neither be more than 101% (?) nor less than 99% (?) of the respective equities appertaining to each class of stock, as disclosed by the audit.
4. An accounting period shall not be longer than one year, nor longer than the time elapsed between the last adjustment of the number of shares outstanding and the

date when a new adjustment in excess of 5% (?) will be required.

5. No distributions of corporate property or equity nor other transactions affecting book values (normal operations excepted) shall be permissible in any form or at any time without the certificate of the auditor, who shall not issue such a certificate unless, in his opinion, the book value of a share after the distribution will not become more than 101% (?) nor less than 99% (?) of its par value.
6. The violation of the trust reposed in corporate directors and the negligent or fraudulent certification of statements by the auditor shall be punishable.

From the practical point of view perhaps the first objection would be that the frequent change in the number of shares outstanding is not feasible. However, there is no more reason for giving the stockholder a stock certificate than there is for giving the bank depositor a certificate of deposit. Individual stock ledger accounts are already kept by every corporation; all that would be necessary is to place them on the basis of cheque accounts and send replicas of bank statements to each stockholder, containing a full list of all stock debits and credits during the period. Transfers could just as well be effected by stock cheques deposited for collection in the usual way.

Evidently, such a law would go far toward dispelling the mystery now surrounding corporate distributive policies. It would compel corporations to distribute:

a. Earnings in excess of expansion in cash or property.
b. Expansion (*i.e.* reinvested earnings) in stock.
c. Expansion in excess of earnings in the form of rights entitling to subscription at par.

Offsetting distributions of cash and rights could be substituted for stock dividends. Warrants and bonus shares could also be issued, but any book equity attaching to them would have to be furnished either by current earnings or by the surrender of old shares. In the absence of such equity distributions to outsiders, earnings and distributions would always have to be equal. It would, therefore, be a simple matter for the stockholder to verify

the progress made during the year. On the other hand, losses or the dilution of equities would be brought home to him forcibly by a reduction in the number of shares held. In general, it would be impossible for anybody not to realize within a comparatively short time that the present value of an investment has nothing whatever to do with the price originally paid for it, and the result could hardly fail to be a salutary increase of the stockholder's interest in the management of his property. That might make the task of management harder, but it certainly would tend to prevent gross negligence and abuses verging on fraud.

The theory of stabilized stock, like the book-value theory, is built up strictly within the bounds of standard accounting procedure, but it represents an additional step forward. The extent to which income is realized under each of the three theories named is the following;

Arbitrary-value theory (as amended):
Corporate earnings after acquisition or the arbitrary value placed upon distributions by the issuing company, whichever be smaller.

Book-value theory:
Corporate earnings after acquisition or the book value of distributions, whichever be smaller.

Stock-stabilization theory:
Corporate earnings which must always equal the book value of distributions.

The introduction of stabilized stock it may be seen, would apply the accrual method to the investor's income without departing from the book-value theory and its fundamental precept that only distributions may be considered income. The unification of standard accounting procedure would be achieved in a simple and forceful manner, leaving no loophole for misinterpretation or questionable practices.

§ 61. Advising the investor.

Until the respective merits of various regulatory theories shall have been settled, the investor is entitled to a certain amount of practical advice. Such advice will be found interspersed with the detailed description of distributions in previous chapters, so that it

is only necessary here to summarize it. Most of the hints given are based upon the discovery that the investor may be guided by what was called the book-value theory without having to reform the corporation first. The actual correspondence of surplus layers as recorded, with their theoretical positions, is not necessary at all, because corporate bookkeeping entries recording distributions are unable to affect the basic yardstick of book equities, the book value of a share. This fact is strikingly illustrated by Fig. 11. A general rule, therefore, to which the investor can easily conform is to follow the book-value theory for his investment in book equities and to consult the trend of market values, as well as data bearing upon the company's future activities, in order to determine what procedure to follow for the investment in market equities.

When the purchase of an investment is contemplated, an inspection of published statements and the gathering of other pertinent information about the company's affairs is a necessary step. Upon acquisition, the approximate book value per share should be ascertained. If quarterly statements are published by the company, an interpolation based upon the position of the date of purchase between two quarter-days will be accurate enough, if adjusted for distributions. The receipt of a distribution likewise gives rise first of all to the query: What is its book value? How that can be answered has been sufficiently illustrated by diagrams. If, after the distribution, the book value of a share is still higher than at the time of acquisition, all is well, and the book value of any distribution may safely be recorded as income, no matter what artificial distinctions are advanced to prove the contrary.

Turning his attention to the market equity, the private investor may choose among the three methods of measurement proposed in § 3, each of which, in appropriate circumstances, has its merits. The suggestions for the treatment of market equities present a departure from standard accounting theory, inasmuch as they may well involve the realization of income from a market appreciation. (See Fig. 9, diagram VI.) For private investors such a step is justifiable under the conditions described in § 38. (For the limitations placed upon corporate investors see § 39.) A far more radical proposal is that the stockholder give up his dependence upon distributions and proceed to cash his income without awaiting corporate action. This proposal will be examined under the title of

§ 62. The investor's declaration of independence.

It has been emphasized many times in preceding chapters that distributions do not give the investor anything he does not already own. At best, they may be considered vehicles for the realization of income under artificial methods, which attempt to deny that the primary source of income is the increase of the capital level, but are ultimately compelled to concede the truth by admitting that distributions in excess of earnings amount to an impairment of the investment. When a recording method is adopted, which measures not only distributions, but earnings as well, the significance of the former fades to the point where they are of no use to the investor, unless they possess the capacity of transmuting his wealth from its unconsumable form into one which may be immediately consumed or enjoyed. The only distribution possessing that faculty in a highly developed era of money economy is the cash dividend. For practical purposes, no other distribution has a form-utility superior to that of the symbol which previously represented the same wealth. To the investor who lives upon his income, " realization " is almost synonymous with " cashing," and he needs no elaborate recording method to understand that, unless a distribution of equity is cashed, he has no more to meet his expenses than he had before its receipt. The only thing a distribution of equity is apt to do is to make him feel confident that he will not impair his initial investment by selling it. That, however, is a point on which the issuing corporation can give him no assurance; the answer can be furnished only by a comparison of the investor's records with those of the company and with the trend of market values. Such a comparison will tell him by what amount his actual wealth exceeds his recorded wealth. The difference may be cashed by selling whatever portion of the investment is handiest, whether that be a distribution or an original share.

Usually, the investor will prefer to sell distributions, so that eventuality may be considered first. If the company's distributive policy permits the continuous growth of the book value per share, the earnings which the investor is unable to realize through the receipt of distributions will likewise grow steadily. In such circumstances it appears to be contradictory to maintain that a distribution of equity returns a part of the original investment, so long as the capital returned is smaller than the earnings withheld.

Using Fig. 9 (diagram IV) to illustrate the contention, it may be said that there is no reason why the stock dividend should not have been considered income to the amount of $2,400 instead of a mere $1,600. All that is necessary is to add the $20 dilution of the market equity per share to the cost of the book equity. The deadline between capital and unrecorded earnings would thereby be raised from $125 to $145, leaving $15 more per share unrecorded. It must be noted that this is not the same as deciding that no write-down of the market premium is necessary. If conditions warrant the realization of a market premium as income, there is no need to change the position of the boundary between recorded and unrecorded book equities. The same procedure may be followed for subscription rights. (See Fig. 17 diagram IV.) Instead of considering that the rights gave the investor $800 of income and returned $800 of his investment in market equities, while leaving $1,600 of corporate earnings undistributed, the dilution of the market premium may again be placed above the book equity of the 40 shares, increasing the level of the boundary line from $140 to $160.

If the company's distributive policy is very restricted, even the offsetting of returned capital against undistributed earnings will not enable the investor to cash his entire income. His last resort, in that event, is the sale of a few original shares. Fig. 25 shows a lot of 50 shares purchased at a book value of $120 and a market premium of $20 a share, on which earnings of $35 and a market appreciation of $25 a share have accumulated since acquisition. If there is no hope that the company will declare a cash dividend, 10 original shares may be sold for $2,000 to realize $1,750 in corporate earnings and a $250 profit on sale (diagram on the left). This step conforms to the conclusion that the market appreciation is due to a temporary fluctuation rather than to a permanent and well-founded increase in the exchange value of the corporate assets.

At the right of Fig. 25, the opposite conclusion is pictured. If the increase in market values is permanent, 15 shares instead of 10 can be sold without impairing the initial investment. In the first instance, the original cost basis of $140 a share was increased to $175 and in the second to $200 for each remaining share. So far as corporate earnings are concerned, the sale of original shares enables the investor to reach the level of the accrual method of recording income. The cashing of market appreciation goes a

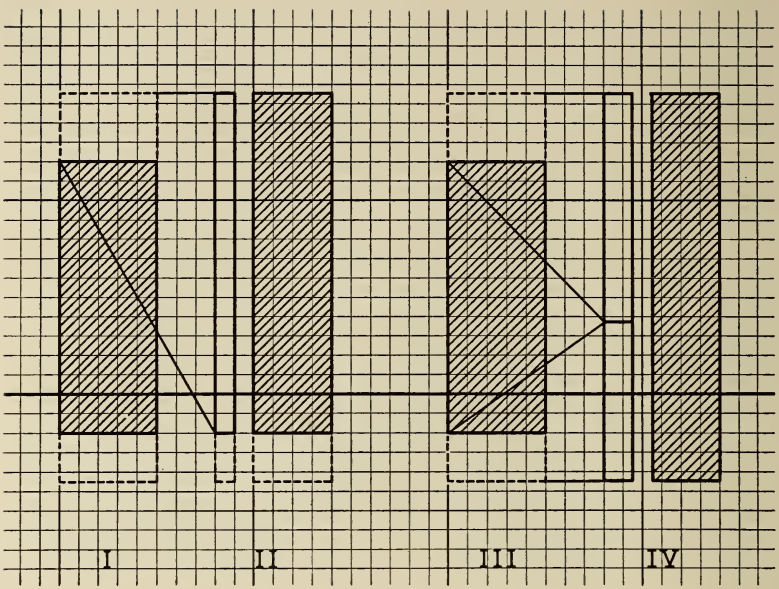

FIG. 25.—INCOME-REALIZATION THROUGH THE SALE OF ORIGINAL SHARES

One horizontal unit = ten shares.

One vertical unit = $10 per share.

The corporate book equities are shown above the axis and the market equities below it.

Investments shaded—earnings unshaded.

I. Position of investor who has purchased 50 shares @ $140. Corporate earnings of $35 a share and a market premium of $25 a share have accrued since acquisition and have been left unrecorded.

II. Position of investor who finds that 10 original shares are equivalent to unrecorded corporate earnings since acquisition and proceeds to sell them.

III. Same as I.

IV. Position of investor who finds that 15 original shares are equivalent to the sum of unrecorded earnings and market appreciation and proceeds to sell them.

step further, but if there are conditions under which a stock dividend can become income in its entirety, their presence will equally warrant the procedure here outlined.

The stockholder inclined to resort to the sale of his original holdings should bear in mind that there is no point in duplicating corporate actions. It is clear from Fig. 25, that whereas a cash dividend of $35 a share would have been income, if the 10 shares had not been sold, the same dividend will be a return of capital if received after the sale of stock. The unnecessary liquidation only causes inconvenience and loss of income until another investment is found.

The problem of finding the number of shares to be sold has two main aspects. It is desired either to know how many shares must be sold to cash the entire income or else to find that number, the sale of which will yield a certain annual cash return while the rest is left to accumulate. The method is susceptible of an infinite number of variations to suit the whims of the stockholder. Having decided to spend only a portion of his income, he may determine that portion in many more or less scientific ways, taking into consideration all factors which influence the dividend policies of directors, but substituting his own desire to save for their duty to provide for expansion.

§ 63. The principle of good management.

The essentials of "good management" in the restricted sense used in this study have been stated briefly in § 5 by saying that the corporate directors must neither retain sterile wealth, nor overlook opportunities for expansion. In the subsequent discussion of the investor's problems it was tacitly assumed that the high-grade equities held by him were managed properly. It now becomes desirable to examine how far improper management impairs the validity of the practical rules based upon this assumption.

Let us consider three different corporate equities earning 10% per annum. Until the end of expansion is actually in sight, the entire income from the stock having an expansion rate of 10% can be cashed annually by selling one-eleventh of the equity on hand at the beginning of the year. For instance, if 100 shares are so held, the sale of $9\frac{1}{11}$ shares would accomplish the purpose in the absence of all distributions. If the company had distributed 21 shares

during the year, 11 could be sold; if it distributed 3200 shares for every 100 held, 300 would represent the increment of wealth accrued since the beginning of the year.

Conditions are slightly different, when the earning and expansion rates differ. If the expansion rate is only 6%, a book equity of $10 increases to $11 as in the first case, and this would apparently enable the company to claim that a 10% stock dividend was paid entirely out of current earnings because, after such a distribution, the book value of a share would be $10 as at the outset. Actually, the $10 represents productive capital only to the extent of $10.60 : 1.1 = $9.$\dot{6}\dot{3}$. The rest, *viz.* 40c : 1.1 = 3$\dot{6}$c is sterile because earnings in excess of the expansion rate can not be reinvested and should have been distributed in cash. This explains why a 10% stock dividend said to be entirely out of corporate earnings reduces the trend value of a $10 book equity from $25.97 at the beginning of the year to $27.93 : 1.1 = $25.39 at the end. (N. B. Computed on the basis of a ten-year horizon and a 5% money rate. See § 5 and appendix.) The same amount invested in the company is worth less, because only $9.64 instead of $10 is productive.

To maintain the earning power of a $10 share at 10%, the company should have issued a 40c cash dividend and a 6% stock dividend. Failure on its part to do so will make it necessary for the stockholder to safeguard his productive equity. For every share of stock he owned at the beginning of the year, he must retain 1.1 : 1.06 = $1\frac{2}{53}$ shares at the end and sell only $\frac{33}{530}$ of a share, instead of the entire 10% received. The total trend value of the investment at the end of the year will then be $1\frac{2}{53} \times \$25.39$ = $26.347 as against $25.97 at the beginning. The difference of 40c : 1.06 = .377 represents the undistributed sterile equity of 3$\dot{6}$c per new share. This difference can not be cashed by selling stock without impairing the productive equity owned. All that can be done is to borrow 3$\dot{6}$c a share in expectation of a cash dividend. Such a step, in turn, demonstrates conclusively that the retention of sterile wealth by the company entails a loss of interest to the stockholder.

A third case may now be examined. The expansion rate is 14% and a 10% stock dividend is again declared, reducing the book value of the stock from $11 to $10 and its trend value from $45.02

to $40.94. While the book value thus returns to the starting point, the market considers the stock more valuable than $39.85 at the beginning of the year (also computed on the basis of a ten-year horizon and a 5% money rate). The difference of $1.09 is the value of the privilege of contributing 36c to the corporate treasury for every $10 already outstanding. As in the case of the sterile cash dividend, there is no way in which the stockholder can cash the additional yield of $1.09 per new share, unless the company distributes subscription rights. And if such rights are not distributed, the stock will be reduced to the level of an investment expanding at the rate of 10%, that is to $31.85 for a $10 book equity.

If the company chooses to distribute stock dividends at a rate other than 10%, the stockholder can again compensate the effects of such a step. A stock dividend of 13% for instance, would reduce the book equity from $11 to $9.73 and the trend value from $45.02 to $39.85. Thus the trend value would return to its level at the beginning of the year, but the book value would drop lower, indicating a loss of productive equity. As in the second case, the number of shares to be retained at the end of the year for every share held at the beginning is found by performing the division $1.13 : 1.1 = 1\frac{3}{110}$. After selling $^{11}3/_{1100}$ of a share, the total trend value of the investment will be $1\frac{3}{110} \times \$39.85 = \$40.94$, exactly as if a 10% stock dividend had been sold in its entirety.

The issuance of subscription rights at an improper rate will make matters still more complicated. Suppose that, immediately after the 13% stock dividend, rights are issued entitling to the subscription of $\frac{1}{20}$ of a share for every share held at a price of $30 per new share. In that event the stockholder must reason as follows:

1. At the beginning of the year he held, say 20 shares representing a book equity of $200 which increased by 10% earnings to $220, represented by 22.6 shares.
2. He sold one-eleventh of his holdings or $2\frac{6}{11}$ shares, reducing his book equity to $200 or $9.73 a share for $20\frac{6}{11}$ shares.
3. The rights exercised by others will increase his book equity to

$$20\tfrac{6}{11} \times \frac{20 \times \$9.73 + \$30}{21} = \$219.83$$

4. Of this, however, only

$$\$219.83 \times \frac{20 \times \$10 \times 1.14}{1.13\ (20 \times \$9.73 + \$30)} = \$197.40$$

is productive. The rest is sterile.

5. He must therefore repurchase $219.83/197.40 \times \$2.60 = \$2.89$ of book equity equivalent to .27 shares.

6. Disregarding the unknown profit or loss on daily market fluctuations, he has sold the $2\frac{6}{110}$ shares for $2\frac{6}{110} \times \$39.85 = \$81.87$.

7. Disregarding the unknown profit or loss on daily market fluctuations, he has sold his $20\frac{6}{11}$ rights for

$$20\tfrac{6}{11}\left(\$39.85 - \frac{20 \times \$39.85 + \$30}{21}\right) = \$9.63$$

8. The reinvestment in .27 shares cost him $\$39.38 \times .27 = \$10.65$.

9. His total increase in wealth was therefore:

From sale of stock	$ 81.87
From sale of rights	9.63
Increase in (sterile) book equity	22.72
	$114.22
Less .27 shares purchased	10.65
	$103.57
On a trend value of $20 \times \$39.84 =$	$796.95
the yield is approximately	13.0%

10. Proof of yield from general formula, § 38:

10% on book equity of $20 \times \$10$	$ 20.00
14% on market equity of $20 \times \$29.85$	83.57
13% on entire investment	$103.57

The issuance of stock rights at an incorrect combination of rate and price has resulted in the accumulation of more capital than the corporation can use. Unless the sterile excess is distributed as a cash dividend, the stockholder must again resort to borrowing if he wants to cash his entire income. The amount in this case is $22.72 on $20\frac{6}{11}$ shares.

Similar examples might be multiplied *ad infinitum,* all tending to show that mismanagement not only causes loss of interest, but may also lead to a loss of productive equity, because the investor is seldom in a position to judge whether the principles of good management have been observed or not. For this reason it is worth remembering that to sail too close to the lee shore is dangerous. (See § 21.)

For the sake of emphasis two rules of good management may be restated as follows:

A. The proper rate for the distribution of cash dividends is the excess of the earning rate over the expansion rate, or such a higher rate, which will distribute in addition the entire proceeds of subscription rights.

B. Rights should be distributed at such a combination of rate and price of subscription that their entire proceeds shall equal the excess of the expansion rate over the earning rate on the productive capital. If cash dividends are also declared, the rights must be so calculated as to produce in addition the entire amount needed for the cash dividend.

Stock dividends may be distributed at any rate desired, without restriction. The problems surrounding warrants, bonus shares or the issuance of stock in payment of assets can not be reduced to simple rules beyond those suggested in the respective sections. It is unquestionable that in the past serious offenses against good management have been committed in these respects, but the possibilities of such offenses are so manifold as to require individual investigation almost to the extent that would be necessary in questioning any other corporate action in the regular conduct of business.

§ 64. Conclusions.

So long as the corporate equity is properly managed, the stockholder can always obtain the "standard income stream" (see § 8) or any other smaller stream of services from his investment without incurring any other risk or detriment than that caused by the fluctuation of market quotations around the trend.

The principal rules for his guidance are:

I. Corporate earnings in excess of the expansion rate should not be cashed through the sale of stock (whether original or dividend stock). The proper procedure is to await the distribution of a cash dividend.

II. The increment of wealth arising from the company's ability to expand at a rate higher than the earning rate should not be cashed through the sale of stock (whether original or dividend shares). The proper procedure is to await the distribution of rights and sell them.

III. The value of the subscription privilege equals the value of the rights issued only if the subscription price equals the book value. If the price is lower, the rights are worth more, the difference being in effect a stock dividend. If the price is higher, the rights are worth less and the difference is a negative stock dividend (return of stock).

There is no reason why the investor's income-realization should be limited to the "actual stream of services" (*viz.* cash dividends) furnished by the corporation. A further stream of "actual services" can readily be secured by sales or borrowing. (See § 8.) It is true, however, that a great deal of computation may be necessary, because the principle of good management gives the company a wide range of choice in distributions. It is difficult to see why this wide range of choice should not be curtailed in furtherance of regulatory ideals. No computation whatever ought to be necessary to distinguish between income and original capital. This ideal could be realized by insisting that corporations distribute the stockholder's entire increase in wealth at regular intervals by:

A. Declaring stock dividends at the rate at which corporate earnings are reinvested.

B. Paying cash dividends with that portion of corporate earnings which can not be reinvested and with the proceeds of subscription rights.

C. Issuing only such subscription rights which equal in value the premium payable for the privilege of con-

tributing new capital. (This means subscription only at book value and at a rate equalling the excess of the expansion rate over the earning rate, plus the rate of cash dividends, plus the rate at which rights are expected to lapse.)

If such a policy were followed, the book value of a share would remain constant and could be called the "par value." The original capital would be represented by the same number of shares as at the date of purchase. Anything else on hand, whether cash, rights or shares, would have to be unconsumed income, *i.e.* surplus. This situation would prevail until the end of expansion emerges upon the horizon. That, in turn, ought to be taken as a hint to change to some other investment. Common stocks, after all, are held mainly for their ability to yield more than the money rate, and only stocks whose end of expansion is still below the horizon, can do so.

CHAPTER IX

DISTRIBUTIONS IN FIDUCIARY ACCOUNTING

§ 65. Life-tenant and remainderman.

The validity of the theoretical conclusions reached on the subject of corporate distributions is not impaired by their application to the specialized field of fiduciary accounting. The only new consideration that arises is the division of proprietary rights made by the testator when bequeathing a certain property to one beneficiary and the so-called income from it to another. Although, so far, capital and income have been regarded as belonging to the same person, no new departure is involved, as it has always been of cardinal importance to distinguish between the original investment and subsequent increments.

In Chapter I a distinction was drawn between fluctuations in the value of assets unchanged in form, volume or identity and fluctuations in the aggregate value of a changing conglomerate of assets. This distinction becomes worthy of renewed attention in the light of a testator's desires. If a man left a parcel of land to his son and the income from it to his widow, it can not be said that he meant to leave his son a specific sum of money equal to the exchange value of the land on the day of his demise. Accordingly the profit on the sale of the land belongs to the son and not to the widow.

This simple case apparently confirms the view that capital gain belongs to the remainderman and only the services of capital to the life-tenant. It thus lends support to that definition which limits income to the services actually rendered by capital, to the exclusion of those which might have been rendered in addition without lowering the original capital level. (See § 8.) An examination of more complicated situations will disclose various flaws in this theory.

In the case of a house, it is at once apparent that a portion of the rent must be applied to the maintenance of the house. If a house should be sold, including a wall-safe and some rent money

within the safe, the life-tenant would have to be reimbursed for the undistributed rent out of the selling price. Finally if a new wing has been added to the house with the rent money, the selling price must be apportioned between remainderman and life-tenant in accordance with the respective values of the original house and the new wing.

These propositions are perfectly obvious in the case of a house, but they have nevertheless been violated at one time or another by almost every court in every land, when corporate stock was the property under consideration. Thus, cash dividends in excess of earnings after death have been held to be income due the life-tenant, while profits on sale arising from earnings accumulated subsequent to death were adjudged capital belonging to the remainderman. (See § 66.) Yet it is clear that justice to both beneficiaries alike can be done only by looking behind the stock certificate and examining what it represents at different dates. It is, therefore, necessary to discard the arbitrary distinction between capital gain and the services of capital as the dividing line between the beneficial interests of remainderman and life-tenant and to return to the accounting concept of standard income, whether consumed or unconsumed. (See § 8.) The inheritance of property not expressed in terms of money leads to a division of this income into two separate streams which are: partly coexistent and partly successive in point of time.

1. To the life-tenant ought to be allocated:
   - *a.* That portion of the increase in corporate net worth, which arises from operations. This is equivalent to earned surplus accumulated after the testator's death.
   - *b.* The market premiums attaching to earnings accrued and reinvested after the testator's death (Good-will or appreciation attaching to reinvestments of surplus accumulated after the testator's death).
2. This leaves for the remainderman:
   - *c.* Increases in the exchange value of the property inherited and of its replacements, excluding additions and betterments.
   - *d.* Earnings (as defined in "a" above) after the life-tenant's death.

e. The market premiums attaching to earnings accrued and reinvested after the life-tenant's death.

The practical application of this general rule and the current deviations from it are discussed in subsequent sections. With reference to terminology it must be mentioned that "income" in fiduciary accounting means both the capital account or equity of the life-tenant in the undistributed estate and the increments added thereto in the process of administration and liquidation. The remainderman's equity and its increments are called "corpus" or "principal." These definitions will be followed for the rest of this chapter, but it should be noted that "income" so used is no longer equivalent to the entire change in the capital level, for a certain form of capital gain is excluded. (See "c" above.) On the other hand neither does it correspond with the "services of capital," because another form of capital gain (see "b" above) is still included.

§ 66. Various judicial rules.

In grappling with the problems of distinguishing between corpus and income the courts of the several states and of the United States have evolved many contradictory rules. With a few exceptions a review of the decisions formulating and applying these rules is worth while chiefly as an object lesson in how not to approach the subject.

For the earliest decisions on stock dividends it is necessary to go back to English archives. The original rule was that ordinary stock dividends belonged to the life-tenant and extraordinary stock dividends to the remainderman. (*Brander* v. *Brander* [1799, Ch.] 4 Ves. Jr. 800.) Precisely when a stock dividend ceases to be ordinary and becomes extraordinary was not explained, but some dim and undefined distinction between capital and earnings, reminiscent of the present artificial differentiation between a "melon" and a small, regular stock dividend, appears to have been at the bottom of the matter, with the corporate directors acting as supreme arbiters. Four years later the same rule was confirmed (*Irving* v. *Houston,* 4 Paton 521), it is said, at the instance of the Bank of England, which objected to the examination of its books for the purpose of apportioning dividends. That an examination was sought implies recognition of the fact that the answer to the ap-

portionment problem is partly dependent upon the financial condition of the corporation. Whether the discovery was made that it also depends upon the date of the death, since the boundary between corporate capital and earnings will not normally coincide with that dividing the principal of an estate from its income, appears to be doubtful.

An offspring of the early English rule is the Kentucky rule concisely stated in *Hite* v. *Hite,* (1892) 93 Kentucky 257:

> "It is the rule as settled by the current of authority that dividends . . . are non-apportionable, and must be considered as accruing in their entirety as of the date when they are declared . . . No inquiry will in such case be made as to what portion of the profit upon which the dividend was based was earned before or after the death of the testator for the purpose of apportioning between the tenant for life and the remainderman. The difficulty attending such an inquiry, the impossibility of attaining accuracy and of ascertaining the many sources from which the profit has been derived are the reasons for the rule."

The rule is at present observed only within Kentucky. During the latter part of the nineteenth century the English courts discarded their original view in favor of their present doctrine that the corporation has the right to decide whether profits represent income or reinvested capital to the stockholder and that it does so when it chooses the medium in which a dividend is to be paid:

> "The dividend to which a tenant for life is entitled is the dividend which the company chooses to declare. . . . Where the company, by a majority of their votes, have said that they will not divide its money, but turn it all into capital, capital it must be from that time." (*Re Barton's Estate* (1868) L. R. 5 Eq. 238.)

The same rule is known in the United States as the Massachusetts rule, which first attracted nation-wide attention in *Minot* v. *Paine et al.* (1868. 99 Massachusetts 101). Chief Justice Chapman of the Supreme Court of Massachusetts said in part:

> "It is obvious that, if the directors had made no stock dividend, but had invested the income in permanent improvements, making no increase in the number of shares, the improvements would have been capital, belonging to the legatees in remainder.
>
> "A cash dividend, however large, is income and a stock

> dividend, however made, is capital. The court are of the opinion that this rule is more in conformity with the legal and equitable rights of stockholders than any other that has been suggested. It is also in conformity with the decisions of this court, so far as the subject has been considered."

The decision was widely attacked at the time in newspapers, periodicals and pamphlets.[1] The absurdity of the contentions advanced was later demonstrated in the case of *Pratt* v. *Pratt* (33 Connecticut R. 446), in which the status of optional dividends had to be determined. Nevertheless the doctrine of *stare decisis* guided most of the Massachusetts courts, so that as late as 1925 it was reaffirmed that:

> "Cash dividends, however large, are regarded as income, and stock dividends, however made, as capital." (*Coolidge* v. *Grant,* 251 Massachusetts 352.)

On the other hand, a contrary decision was rendered as early as 1872, declaring that:

> "The suggestion that the intention of the directors should determine the question whether the dividend is capital or income can not be correct. . . . It is more safe to look at the character of the property and the transaction." (*Heard* v. *Eldredge,* 109 Massachusetts 258.)

A far better grasp of the fundamental nature of distributions is shown by the decisions adhering to the so-called Pennsylvania rule, which is followed by the courts of California, Delaware, Iowa, Maryland, Minnesota, New Hampshire, New Jersey, New York, Pennsylvania, South Carolina, Tennessee, Vermont and Wisconsin.[2] The theory that any dividend represents income so far as it distributes earnings accumulated after the testator's death, and capital to the amount derived from earnings prior to that date is laid down in *Lord* v. *Brooks,* (1872) 52 New Hampshire 72 and *Smith's Estate* (1891) 140 Pennsylvania 344. It was further developed in *Soehnlein* v. *Soehnlein* (1911) 146 Wisconsin 330 as follows:

> "In disposing of stock or property dividends as between tenant and remainderman the court may properly inquire as

[1] See J. O. Sargent's writings listed in the bibliography.

[2] Cf. L. L. Briggs: Stock Dividends. *The Journal of Accountancy,* March, 1930, pp. 193–201.

> to the time when the fund out of which the extraordinary dividend is to be paid was earned or accumulated and also as to the method of accumulation. If it is found to have accrued or been earned before the estate arose, it may be held to be principal, and, without reference to the time when it is declared or made payable, to belong to the corpus of the estate and not go to the life-tenant. But when it is found that the fund, out of which the dividend is paid, accrued or was earned, not before, but after the life estate arose, then it may be held that the dividend is income and belongs to the life-tenant."

A method of computation for the equitable apportionment of stock dividends between life-tenant and remainderman was propounded in *Matter of Osborne* (1913) 209 New York 450:

> "The intrinsic value of the trust investment is to be ascertained by dividing the capital and the surplus of the corporation existing at the time of the creation of the trust by the number of shares of the corporation then outstanding, which gives the value of each share, and that amount must be multiplied by the number of shares held in the trust. The value of the investment represented by the original shares after the dividend has been made is ascertained by exactly the same method. The difference between the two shows the impairment of the corpus of the trust. . . . If the dividend is in stock the amount of impairment in money must be divided by the intrinsic value of a share of the new stock and the quotient gives the number of shares to be retained to make the impairment good—the remaining shares going to the life beneficiary."

The difference between earnings and the appreciation of capital assets was clarified a few years earlier in *Kalback* v. *Clark,* (1907) 133 Iowa 215:

> "If, however, the so-called stock dividends represent the corporate capital—that is represent nothing but the natural growth or increase in the value of the permanent property, so that there is merely a change in the form of ownership—such stock should go to the remainderman; for in such case the dividend is a dividend of capital, representing simply an increase in the value of the physical property, goodwill or other things of tangible value."

On the broad basis outlined by the last three decisions, it will be possible to return to the diagrams illustrating the various distributions, in order to examine the conflict of interest between life-tenant and remainderman.

§ 67. Dividends in cash, property and evidences of indebtedness.

To revise the description of Fig. 6, it may be assumed that a decedent left 30 shares of stock in trust to his son, with directions that the income from them be paid to his widow during her life. On the day of the testator's death, the stock was worth $140 a share on the books of the company and further commanded a premium of $100 in the market. In due course thereafter the company earned $60 a share, and the market premium increased by $40. The dividend D of $40 a share, declared at this point, was earned after the creation of the trust estate and therefore belongs to the life-tenant. So far, the matter is clear, but what are the widow's rights in the $20 a share left undistributed? That immediately brings up a question of fact as to the testator's intentions. If he wanted his son to have and to hold 30 shares of stock, whatever they might at any time represent, the conclusion reached in *Re Barton's Estate* appears to be correct and the life-tenant is entitled only to the dividend which the company chooses to declare. By holding that a share of stock is a piece of property comparable to land, the testator in effect transfers the right of determining both the capital of his son and the income of his widow to the corporate directors, whose decisions are not concerned with their welfare, but with the principle of good management. (See § 63.) It is more logical to assume, therefore, that bequeathing stock amounts to bequeathing the assets symbolized by it on the date of death. Under this theory, the widow is entitled to the undistributed earnings, but the problem of her getting them still remains unsolved. One way would be to apply the accrual method by charging corpus and crediting income with $600, whereupon she could draw against the balance of the latter account in the same way as if the credit had arisen by charging cash. Such a procedure would, however, necessitate the sale of other estate assets, so it is generally argued that what has not been received from the company, can not be given to the life-tenant. In that event, the widow would retain an equity in the 30 shares. If the funds represented by that equity were reinvested by the company in fixed assets, any subsequent increase in their exchange value ought likewise to belong to her, but she will be unable to consume the wealth to which she is entitled if the stock can not be sold until after her death.

That is an injustice, as the life-tenant is fully entitled to the enjoyment of her entire income and should not be forced to reinvest a portion of it for the benefit of her heirs unless she desires to do so. It logically follows that the life-tenant should have the right to force the sale of stock to the extent of her interest in it, in the manner pictured in Fig. 25.

In Fig. 6 a cash dividend in excess of $60 a share would liquidate a portion of the estate principal. When a dividend is received soon after the date of death, it should be examined for such a possibility, as corporate earnings during the few days elapsed may well be smaller than the amount of the dividend.

In what way a property dividend will affect the two beneficiaries of the estate may be seen in Fig. 7 by substituting the date of death for the date of purchase. The summaries of the investor's capital given in § 24 list invested and uninvested corpus and income separately, so their allocation is an easy matter. Of the wealth recorded by the accrual method $10,000 is corpus and $1,800 income. Since the property received as a dividend was originally a corpus investment the remainderman will be entitled to the paper profits accrued on it. If an immediate apportionment on the basis of market values is approved, $1,500 worth will go to corpus and $1,200 worth to income, leaving undistributed a $600 equity of the life-tenant in the company. As already pointed out, the trustees might well pay off this equity by charging corpus, that is, by allocating the property dividend in the ratio of $900 to $1,800.

Bond and preferred stock dividends present only the difficulties of determining their value. (See §§ 25, 26.) After that is done in conformity with the description of Figs. 7 and 8, they may be apportioned in the same manner as cash dividends.

§ 68. Stock dividends.

The rule of apportioning stock dividends, described in *Matter of Osborne,* applies to a situation shown in Fig. 10, diagram III. The estate held 25 shares of stock, having a book value of $140 and a market value of $260 a share on the day their owner died. Subsequently the company earned $60 a share. The declaration of a 60% stock dividend gave the estate 15 new shares, which must be apportioned between life-tenant and remainderman. If the formula is followed, 3 shares will be retained to offset the impairment

of corpus and 12 will be delivered to the life-tenant. This would have been the correct result if the stock had been worth exactly its book value on the day of death. Actually, not only the book value was diluted by the stock dividend, but also the market premium, and the true impairment of the estate principal may be much greater. The diagram supports a division of 7½ shares to each beneficiary, but the correct answer will depend entirely upon the conclusions regarding the market premium. Its nature is examined in preceding chapters, but the main factors creating and changing it may be restated for convenience:

1. Overconservative accounting procedure.
2. Decrease in the purchasing power of the currency unit.
3. Increase in the exchange value of corporate assets.
4. Earning power in excess of a normal return.
5. Decrease in the value of capital available for investment (decrease of the money rate).
6. Deviation of the daily quotations from the trend.

If specific portions of the market premium can be identified as arising from one or another of the sources enumerated, it is simple to determine whether the life-tenant or the remainderman is entitled to it. For instance:

ad 1. Overconservative accounting procedure understates income; therefore the premium is additional income.

ad 2. The premium offsets the shrinkage in the value of the investment which would occur, if it were still expressed by the same number of currency units. Where both corpus and income equities are invested in the same stock, the amount applicable to each can be computed, if the dates, amounts and index numbers are available.

ad 3. The increase in the exchange value of assets may be caused by a change in economic conditions enhancing the value of certain goods at the expense of others. The increments are applicable to the equity invested in them, whether that be corpus or income.

ad 4. Capitalized earning power in excess of a normal return is known as good-will. An increase in its value may be due to many factors, most of which are equitably reflected by apportioning the entire good-will in accordance with the ratio of the respective investments of

corpus and income in the productive unit to which it attaches.

ad 5. A decrease of the money rate means a decrease of the normal return. The result is equivalent to an increase of earnings in excess of an unchanged normal return. It increases the capitalized value of those earnings and leads to the same conclusions as good-will.

ad 6. It must be decided whether the fair value of the stock on any particular day is its market value or the trend value, and the apportionment must be made accordingly.

§ 69. Subscription rights and optional dividends.

Positive subscription rights are so similar to stock dividends that their apportionment between life-tenant and remainderman does not give rise to special conditions worthy of discussion. Disregarding points 1, 2 and 6 of the preceding section, the shaded and unshaded portions in Fig. 17, diagram IV and Fig. 19, diagrams III and V, indicate corpus and income respectively. The daily market fluctuation is not shown, but if it is desired to take it into consideration, it may be apportioned as that of the stock dividend by inquiry into the causes creating it.

Negative subscription rights (Fig. 18 diagram IV) may represent income only so far as a portion of the daily market deviation from the original premium purchased may be assigned to income, in accordance with the reasoning followed. The rest is corpus.

Regarding the impairment of corpus and the accrual of income under various conditions resulting from optional dividends or the incomplete exercise of rights, various questions may arise. The impairment of the original corpus at the date of death may undoubtedly be recovered from income, but need a transfer of subsequent appreciation be made good? In Fig. 16 (diagram II) for example, the $1,600 dividend received in cash is income to the extent of $1,236.36 and corpus in the amount of $363.64, because the stock carried a market premium of $100 a share on the day of death. Assuming that the market price had increased since then, so that the quotation after the optional dividend would still be in excess of $260 a share, would the same $363.64 be chargeable against the $1,600 cash receipt? This question can be solved by examining the causes which made the premium rise above $100 a

share before the declaration of the dividend. A decision to disregard daily quotations will, of course, make such an adjustment impossible.

Fig. 20 (diagram VI) presents a more difficult problem springing from incompletely exercised positive subscription rights. That portion of the value of the rights which was derived from corporate earnings is evidently income, but who shall receive the amount out of the market premium of the other stockholder? Is it corpus or income? If it be argued that it is a profit on some one's negligence, it may be the latter. Or it may be looked upon as identical in nature to the layer of market equity transferred from corpus to the rights and be adjudged an increment of corpus. Finally, if the layer accrued subsequent to the date of death it may again be analyzed and apportioned. Incompletely exercised negative subscription rights offer the same problem.

There is still another question left. If the estate fails to sell or subscribe who shall suffer? In the case of positive rights there is a loss both in book and market values, whereas the book increase caused by negative rights partly offsets the market loss. The most equitable answer is undoubtedly that the trustee shall pay for his negligence, but if that is not feasible, the life-tenant will have to bear it at least to the extent that it would impair the value of the corpus on the date of death.

Although these problems appear to be almost incapable of equitable adjustment, it is fortunate that the amounts involved can not loom very large in proportion to the total estate administered. If, however, a testator has a solution which he considers correct, the best thing he can do is to describe it in his will so that his intentions may be carried out.

§ 70. Distributions disregarding the preëmptive right.

The dilution caused by distributions not conforming to the preëmptive right will have even more serious consequences upon the financial condition of an estate than upon that of a private or corporate investor. The latter will ultimately face the same profits or losses whether they recorded them correctly or incorrectly, but the estate trustee and administrator who makes errors will favor one beneficiary at the expense of the other, although he has an equal obligation toward both.

Figs. 9 to 21 can again be used without change, provided it be

remembered that the distributions are received by somebody else, not the estate. Fig. 17 (diagram IV) shows an $800 impairment of the original corpus and a reduction of unrecorded income by the same amount. In addition to not receiving r = $800, must the life-tenant make good the shortage caused in the principal? In effect, a portion of the estate's assets has been given away. If it was the testator's desire that the corpus at the date of death be maintained intact, the life-tenant faces the entire loss. Strong arguments may, however, be advanced in favor of apportionment according to the corpus and income equities invested in the stock.

Warrants owned by the estate give rise to another moot point. Is the profit on their sale corpus or income? Unless these are definite indications of the testator's desires, attempts at solution must again involve a good deal of hairsplitting. A warrant has three stages in its development. In the first its value is entirely speculative; in the second a market equity is combined with a speculative premium; and in the third—which it need not reach at all in order to be exercised at a profit—an equity in corporate assets is added to a market premium and the speculative premium. To the extent of corporate earnings in the third stage, the profit appears to be clearly income, while the premiums can be apportioned according to whether they are due to the appreciation of original corpus assets or to earnings subsequent to the date of death.

Warrants overhanging stock held by the estate will have no other effect than that of reducing the income yielded in a manner comparable to that of smaller corporate earnings.

§ 71. Conclusions.

It is undeniable that even with the most painstaking efforts to differentiate between income and corpus, fiduciary apportionment problems can not be solved in a wholly satisfactory manner. The reason for the uncertainty prevailing is that there is a practical limit beyond which the identification and measurement of the various forms of investment symbolized by a share of stock can not be carried. When the beneficiary interest in the stock is undivided, such an inquiry need not be so detailed because the entire capital increment accrues to the same person or persons.

Ill feeling and even litigation among relatives could be avoided by a definite expression of the testator's general wishes as to investments in corporate stocks. After all, he is interested only in

making equitable provision for those who hold his affection, and he will therefore wish to do so in such a manner as to avoid an unexpected defeat and miscarriage of his intentions through technicalities which could not be foreseen when the will was drawn. A random selection of contradictory principles or rules any one of which he may direct his trustees to follow is submitted herewith:

1. The investment represents a sum certain in money on the date of death. That sum of money is to be maintained intact; its increments are income.
2. The investment represents a sum certain of purchasing power as measured in terms of a specific index or a stated combination of several indexes. That volume of purchasing power is to be maintained intact; its increments are income.
3. The investment consists of a certain number of shares. That number, irrespective of its value is capital; everything derived from it is income.
4. Only corporate earnings subsequent to the date of death are income; all other increments are capital.
5. All capital increments which are not corporate earnings must be divided in the ratio of the respective average investments of corpus and income in the stock. Corporate earnings are income.
6. Property dividends (including cash and evidences of indebtedness) are income; equity distributions are capital.

Any number of different plans may be described in a few words, which will give a definite clue to the method which the decedent himself would have selected to settle the dispute. The simpler the basic principle, the better the plan will ordinarily work. Plan 2, for instance, provides probably the most equitable solution that can be found and yet its administration would not be difficult.

The chief problem of fiduciary accounting is not so much that of formulating a correct theory of distributions as that of carrying out the testator's instructions. The clearer those instructions are, the less need will there be for accounting theory to step in and act as an interpreter. The distinctions between income and corpus are sometimes so elusive that any decision must appear arbitrary. And if arbitration is necessary, it ought to be performed by the testator himself.

MATHEMATICAL APPENDIX

§ 72. The fair value of proprietary equities.

The mathematical theory of investment defines the rate of increase of an invested sum s as the derivative of the sum with respect to time, divided by the sum itself.[1]

$$I(t) = \frac{1}{s}\frac{ds}{dt} \tag{1}$$

The sum s at a future time n is found by compounding its initial value $s(o)$ from o to n.

$$s(n) = s(o)e^{\int_0^n I(t)dt} \tag{2}$$

Conversely, the present value of a future sum is obtained by multiplying it with the discount factor.

$$s(o) = s(n)e^{-\int_0^n I(t)dt} \tag{3}$$

This concept of the productivity of investment is based upon the assumption that the earning power of capital is always matched by an equal power to compound its own earnings. In the case of loan-funds, which derive their earning power from a contract enforceable at law and backed by the borrower's resources, this assumption is justified. The proprietary equity of a business is, however, in a different position. Its earning power is derived, not from a contract, but from successful business operations. It will depend entirely upon the degree of success, how much, if any, new investment is needed from year to year in that particular business. In such circumstances, it must be recognized that earning power and ability to compound are two distinct concepts, neither of which is necessarily governed by

[1] The expression represents the force of interest as variable in time. The difference between the force of interest and interest in the commercial sense is small and one may be readily transformed into the other by means of the relation

$$1 + m = e^i$$

where i is the force of interest and m the interest rate per annum. All other rates herein used likewise represent the force of their annual rates.

the other. Each must therefore receive separate consideration. Adapting formula (2) to these requirements, we obtain

$$(4) \quad \frac{s(n)}{s(o)} = S(n) = e^{\int_0^n X(\tau)d\tau} + \int_0^n [R(t) - X(t)]e^{\int_0^t X(\tau)d\tau}dt$$

During the time n a unit of business equity increases through compounding at what has been called the expansion rate $X(t)$. In addition, an annuity amounting to the difference between the earning rate $R(t)$ and $X(t)$ also accumulates, but it must either remain sterile, or be distributed to seek investment elsewhere. If $X(t) > R(t)$, the difference is negative and denotes that, in addition to the entire earnings, new outside funds can also be productively invested.

From formula (4), which can be reduced to

$$(5) \quad S(n) = \int_0^n R(t)e^{\int_0^t X(\tau)d\tau}dt + 1$$

the earning rate is expressed as the rate of change of the sum, divided by its productive portion

$$(6) \quad R(t) = \frac{dS}{dt}e^{-\int_0^t X(\tau)d\tau}$$

Similarly, the expansion rate is the rate of change of the productive equity divided by the productive equity.

$$(7) \quad X(t) = \frac{d}{dt}[e^{\int_0^t X(\tau)d\tau}]e^{-\int_0^t X(\tau)d\tau}$$

For purposes of comparison with the present value of loan-capital, the present value of business-capital can be obtained by adapting formula (3).

$$(8) \quad \frac{s(o)}{s(n)} = P(n) = \int_0^n [R(t) - I(t)]e^{\int_0^t [X(\tau) - I(\tau)]d\tau}dt + 1$$

This formula states in effect that there are two kinds of dollars. One may be called the production-dollar and the other the market-dollar. The former is invested in an instrument of production and is at work under special conditions which enable it to produce earnings at the rate $R(t)$, while making room for new investment at the rate $X(t)$. The market-dollar, on the other hand, merely has an expectation of earning the money

rate $I(t)$ and expanding at the same rate. The problem of finding the fair market value of equities accordingly consists of finding the number of market-dollars which equal a single production-dollar in earning and expanding power.

When trustworthy information as to the future behavior of earning and expansion rates is available, their appropriate functions, inserted into (8), will often give expressions which can be readily solved.

As a simple illustration, be it assumed that the capital C invested in a business is expected to increase to aC in n years, in addition to yielding an even flow of income aggregating rn. What is the present value of this investment when the money rate remains constant at i?

Solution:

Productive capital $= Ca^{t/n}$ $\qquad X(t) = \frac{1}{n}\log a$

$R(t) = \frac{r}{Ca^{t/n}} + \frac{1}{n}\log a$ $\qquad I(t) = i$

$$(9)\quad CP_{(n)} = C\int_0^n \left[\frac{r}{Ca^{t/n}} + \frac{1}{n}\log a - i\right] e^{\int_0^t (1/n \log a - i)d\tau}\, dt + C$$

$$= \frac{r}{i}(1 - e^{-in}) + Cae^{-in}$$

In the case of common stocks the information assumed in the example is seldom available and it becomes necessary to use estimates based upon past experience or other sources. It is quite customary in the stock market to appraise a high-grade common stock on the same basis as a perpetuity, *viz.* by dividing its earning rate by the money rate. But even if it is proper to assume that the rates used will remain constant for several generations,[2] this method yields an acceptable result only if the company in question has reached the limit of its expansion.

To demonstrate how strongly the market value of an investment reacts to the possibility of expansion, be it assumed that earning, expansion and interest rates remain constant at

$R(t) = r$; $X(t) = x$; and $I(t) = i$. Substituting into (8) and integrating, we get

[2] The difference between the value of a perpetuity and the value of a bond maturing in a hundred years is usually negligible.

$$(10) \qquad P(n) = \frac{r - i}{x - i}(e^{(x-i)n} - 1) + 1$$

Now let $n = \infty$. Then for $x = 0, \ldots P(n) = r/i$, whereas for $r > i < x, \ldots P(n) = \infty$, meaning that the present value of any investment capable of compounding its own earnings indefinitely at a rate higher than the money rate must be infinite. There are several well-known stocks which have in the past demonstrated such an earning and expanding capacity. That their quotations have never reached infinity, even at the peak of the 1929 boom, shows how inconceivable it is that expansion could go on forever. At least the permanency of the expansion rate must be discounted for its probability. Using a normal curve of error for the purpose, the result is

$$(11) \qquad P(n) = (r - i)\int_0^n e^{\int_0^t (xe^{-\tau^2/2\sigma^2} - i)d\tau} dt + 1$$

The resultant present value will depend entirely upon the standard deviation σ chosen for the curve. By assuming that the investor can not look more than τ years into the future, σ is obtained from the relation $\tau = 4\sigma$, since $e^{-8} = .00034$, or practically zero. Formula (11) can be evaluated by various more or less laborious methods, such as integration around a closed path in the complex plane, expansion into series and integration by parts. These methods need not be discussed here because it can be shown by simple arithmetical approximations that when n is large the difference

(12)

$$\Delta = \int_0^{\sigma\sqrt{\pi/2}} e^{\int_0^t (x-i)d\tau} dt + e^{x\sigma\sqrt{\pi/2}} \int_{\sigma\sqrt{\pi/2}}^n e^{-\int_0^t i d\tau} dt - \int_0^n e^{\int_0^t (xe^{-\tau^2/2\sigma^2} - i)d\tau} dt$$

is insignificant for appraisal purposes. It is therefore permissible to write

$$(13) \quad P(n) = (r - i)\int_0^{\sigma\sqrt{\pi/2}} e^{(x-i)t} dt + (r - i)e^{x\sigma\sqrt{\pi/2}} \int_{\sigma\sqrt{\pi/2}}^n e^{-it} dt + 1$$

The integration has been simplified by substituting the initial and final tangents to the curve $y = \int_0^t xe^{-\tau^2/2\sigma^2} d\tau$ for the curve itself. Placing $\sigma\sqrt{\pi/2} = k$, $n = \infty$ and reducing, we obtain

$$(14) \qquad P(n) = e^{(x-i)k}\left(\frac{r - x}{x - i} + \frac{r}{i}\right) - \frac{r - x}{x - i}$$

From this formula, the approximate fair market value of a single production-dollar can be computed whenever, in the light of the information available, it is reasonable to suppose that the values assigned to the earning and interest rates will, on the average, remain unchanged for several generations. As for the expansion rate, the value in years assigned to $t = 4\sigma$ may be considered a horizon, beyond which the investor is unable to look into the future. The net effect of his gradually dimming vision from the present toward this horizon will be closely approximated by placing $k = \sigma\sqrt{\pi/2}$, or about $3t/10$.

To illustrate the use of the formula, be it required to appraise a share of common stock on the basis of the following information:

1. The company manufactures a nationally known product commanding a wide and fairly stable market.
2. The management is considered competent and its accounting methods satisfactory.
3. Past experience indicates that average annual net profits of 8% can be confidently expected. Dividends of two cents per dollar of book value have been paid for a number of years.
4. In the past the company's productive capital has been expanding at the rate of 6% per annum and there is no indication that this rate will decline in the near future.
5. The prospective purchaser is willing to pay in full for the first six years of expansion or, what amounts to the same thing, he believes that the company will not reach the limit of its expansion for twenty years.
6. The money rate is 4%.
7. The book value of a share at the time of the appraisal is $11.15.

$$11.15P = 11.15\left[\left(\frac{1.06}{1.04}\right)^{6}\left(\frac{.08 - .06}{.06 - .04} + \frac{.08}{.04}\right) - \frac{.08 - .06}{.06 - .04}\right]$$
$$= \$26.36$$

Although this is only a random example not conforming to the information disclosed by either Fig. 2 or Fig. 3, it is, nevertheless, more than probable that the trend values computed from formula (14) are too high. This means that it is improper to assume that the average earning rate of a business cycle will

remain constant for several generations. A more general formula can be obtained by discounting the risk of the earning rate as well.

$$(15) \qquad P = \int_0^n (re^{-t^2/2\Sigma^2} - i)e^{\int_0^t (xe^{-\tau^2/2\sigma^2} - i)d\tau} dt + 1$$

The symbol Σ represents the standard deviation of the probability curve used to discount future earnings. By a reasoning similar to that followed in deriving (14) from (11) the following result is obtained:

$$(16) \quad P = e^{(x-i)k}\left[\frac{r-x}{x-i} + \frac{r}{i}\left(1 - e^{-i(n-k)}\right)\right] + e^{xk-in} - \frac{r-x}{x-i}$$

In this formula, n is the horizon for the earning rate and k, as before, that of the expansion rate. By placing $n = \infty$ or k, (16) reduces to (14) or (10).

An examination of formula (16) for special values shows that for

a. $r = i$ ..... $P = 1$

b. $x = 0$ ..... $P = e^{-in}\left(1 - \frac{r}{i}\right) + \frac{r}{i}$

c. $x = i$ ..... $P = e^{-i(n-k)}\left(1 - \frac{r}{i}\right) + \frac{r}{i} + k(r - i)$

d. $x = r$ ..... $P = e^{rk-in}\left(1 - \frac{r}{i}\right) + \frac{r}{i}e^{(r-i)k}$

e. $k = 0$ ..... $P =$ same as for b

f. $k = \infty\,;\ r > i < x$ ..... $P = \infty$

g. $k = \infty\,;\ r > i > x$ ..... $P = \frac{r-x}{i-x}$

h. $i = \infty$ ..... $P = 0$

i. $i = 0$ ..... $P = \infty$

j. $i > r;\ x = 0;\ k = 0$ ..... $P =$ same as for b

These results may be restated in the form of rules:

(a) When the earning rate equals the money rate, the market value tends to equal the book value.

(b) When an investment is not expanding, its fair market value is limited by the quotient of earning rate over money rate.

(c) When the expansion rate equals the money rate, the market value of an investment will depend upon the excess of the

earning rate over the money rate and the number of years of future earnings and expansion.

(d) When the expansion rate equals the earning rate, the fair market value of an investment is limited by the product of that value, which it would have in the absence of expansion, with the present value of the final corporate equity.

(e) When the investor does not pay a premium for expanding power, the market prices of stationary and expanding investments will not differ.

(f) The value of an investment expanding indefinitely at a rate higher than the money rate is infinite, provided the earning rate is also higher than the money rate.

(g) The market value of an investment expanding indefinitely at a rate lower than the money rate is based upon the quotient of earning rate minus expansion rate over money rate minus expansion rate.

(h) If money rates are very high, the market values of investments are very low.

(i) If money rates are very low, the market values of investments are very high.

(j) A company earning less than the money rate on the equity invested in it can not compound those earnings profitably, and therefore capacity for expansion will pass unrecognized, giving the investment a stationary status.

The valuations obtained from (16) may range all the way from (10) to (14) as the horizon n of the earning rate is increased from its lowest value k in (10) toward infinity in (14).

If the market price P of a share of stock is given and the earning and expansion rates have been computed or estimated, it is interesting to ascertain for how many years the company would have to continue earning and expanding to make the present price attractive. For this purpose (10) and (14) can be transformed into:

$$n = \frac{\log\left[1 + (P_{(10)} - 1)\frac{x - i}{r - i}\right]}{x - i} \tag{17}$$

and

$$k = \frac{\log\frac{i}{x} + \log\left[1 + (P_{(14)} - 1)\frac{x - i}{r - i}\right]}{x - i} \tag{18}$$

The two formulæ differ from each other only by $\log i/x$, which is ordinarily a negative quantity. Compromises between (17) and (18) can be computed by expressing n in multiples of k and solving (16) for the latter symbol.

The value of the investment derived from (16) may be called the "trend value," because it is based upon a study of graphs which compare the long-term trend constructed from daily market quotations over a period of years with book values and distributions. The formula, of course, is useful only in cases where earning and expanding power are the principal price-building factors. It gives good-will valuations and can not apply to investments which derive a portion of their value from other sources, such as the appreciation of real estate, etc. Furthermore, the trend value computed will not be more trustworthy than the elements entering into its computation, and therefore the scope of the formula is limited to the stocks of large companies engaged in the production of essential commodities or services, which command a sufficiently wide and stable market. These conditions are apparently met by a number of stocks listed on the New York Stock Exchange. Within these limitations, the general law of the yield can be developed.

§ 73. The yield of proprietary equities.

The yield of an investment consists of the gradual increase in value plus the income distributed. If, therefore, P is the trend value of a production-dollar and if the number of production-dollars increases at the rate $X(t)$, the rate of yield, denoted for convenience by ϵ, must be:

$$\epsilon = \frac{\frac{d}{dt}\left(Pe^{\int_0^t X(\tau)\,d\tau}\right)}{Pe^{\int_0^t X(\tau)\,d\tau}} + \frac{R(t) - X(t)}{P} \tag{19}$$

To obtain the yield of a given investment from this general expression, the nature of the upper limit of integration in (8) should be examined. If the investment has a fixed maturity, n represents a fixed point in time, the date of maturity, and it will be necessary to consider the lower limit of integration as variable, replacing o by t. This transforms (10) into

$$P = \frac{r - i}{x - i}\left(e^{(x-i)(n-t)} - 1\right) + 1 \tag{20}$$

and (14) into

$$P = e^{(x-i)(k-t)}\left(\frac{r-x}{x-i}+\frac{r}{i}\right)-\frac{r-x}{x-i} \tag{21}$$

Substitution of (20) or (21) into (19), followed by differentiation and reduction, will give the result:

$$\epsilon = i \tag{22}$$

An investment having a fixed maturity can yield neither more nor less than the money rate. That is, indeed, self-evident from the definition of the market-dollar. (See comments on (8).)

If the investment has no fixed maturity, n and k will represent horizons or fixed distances from the point of observation, beyond which the future is hidden and beyond which, therefore, no income or expansion is expected. As the point of observation advances in time, the horizons will recede, disclosing additional income or expansion not hitherto relied upon. In such circumstances, formulæ (10) and (14) can be substituted into (19) without change. And, since P is now constant, (19) will immediately reduce to

$$\epsilon = x + \frac{r-x}{P} \tag{23}$$

If an investment continues to be productive beyond the date originally expected, it has been undervalued at the time of its first appraisal and will therefore yield more than the money rate. Its yield will equal the expansion rate, plus the cash dividend rate per dollar of trend value until the time comes when the end of production is sighted. If the company distributes cash dividends in excess of $r - x$ or if $x > r$, the expansion rate can be maintained only by inviting outside capital to make up the shortage. The validity of (23) remains unimpaired, but it may be better understood in the form:

$$\epsilon = x + \frac{c}{P} - \frac{x-r+c}{P} \tag{24}$$

where the second term represents the cash dividends and the third the new capital paid into the corporate treasury.

Formula (23) appears to set forth the typical situation obtaining in the case of high-grade common stocks. The examination of the formula for special values will, therefore, lead to the subsidiary laws of the yield of such common stocks.

a. $r = i \ldots\ldots\ldots\ldots \epsilon = i$

b. $x = 0 \ldots\ldots\ldots\ldots \epsilon = \dfrac{i}{e^{-in}\left(\dfrac{i}{r} - 1\right) + 1}$

c. $x = i \ldots\ldots\ldots\ldots \epsilon = i + \dfrac{r - i}{e^{-i(n-k)}\left(1 - \dfrac{r}{i}\right) + \dfrac{r}{i} + k(r - i)}$

d. $\begin{cases} x < r \ldots\ldots\ldots\ldots \epsilon < r \\ x = r \ldots\ldots\ldots\ldots \epsilon = r \\ x > r \ldots\ldots\ldots\ldots \epsilon > r \end{cases}$

e. $k = 0 \ldots\ldots\ldots\ldots \epsilon = x + \dfrac{r - x}{e^{-in}\left(1 - \dfrac{r}{i}\right) + \dfrac{r}{i}}$

f. $k = n = \infty$ and
$r > i < x \ldots\ldots \epsilon = x$

g. $k = n = \infty$ and
$r > i > x \ldots\ldots \epsilon = i$

h. $i = \infty \ldots\ldots\ldots\ldots \epsilon = \infty$

i. $i = 0 \ldots\ldots\ldots\ldots \epsilon = x + \dfrac{1}{e^{xk}\left(\dfrac{1}{x} + \dfrac{n - k + 1}{r - x}\right) - \dfrac{1}{x}}$

j. $i > r \ldots\ldots\ldots\ldots \begin{cases} x = 0 \\ k = 0 \\ \epsilon = i \end{cases}$

(a) If the corporate earning rate equals the money rate, the investment will not yield more than that rate, even if the horizons are receding.

(b, c) If the company is expanding at a rate equal to or lower than the money rate, the investment can not yield more than the money rate unless its earning rate is higher and unless the horizon of the earning rate is receding. If the expansion rate exceeds the money rate, the horizon of an earning rate in excess of the money rate need not recede. The investment will yield more than the money rate so long as the horizon of the expansion rate recedes.

(d) If the expansion rate equals the earning rate, and if at least the horizon of the expansion rate is receding, the investment will yield that rate on its market (trend) value which the company earns on its book value. If the expansion rate is higher or lower than the earning rate, the

investor will obtain a higher or lower yield on the market (trend) value of his investment than the company earns on its book value.

(e) An investment with an earning rate higher than the expansion rate will yield the highest return when the market's estimate of the future expansion period is conservative. Conversely an investment with an expansion rate in excess of the earning rate will be favored by a liberal estimate.

(f, g) The longer the period of future expansion for which the purchaser is willing to pay, the closer the yield corresponds to the expansion rate, but it can never be lower than the money rate.

(h) When the money rate at which future payments are discounted is very high, the yield of all securities is also very high.

(i) When the money rate is very low, the yield of securities is determined almost entirely by their capacity for expansion.

(j) When the earning rate of an investment is lower than the money rate, expansion would involve the investor in a loss and therefore the yield is limited to the money rate.

The laws of the yield here outlined refer, of course, to idealized static conditions rather than actual dynamic ones. $R(t)$, $X(t)$, $I(t)$, n and k were assumed to have remained constant although, in practice, estimates of the average values of these elements are constantly being revised in accordance with spontaneous or induced changes in market psychology. The greater the number of variables entering into the appraisal of a security, the greater are the fluctuations in its value. In the case of a safe bond, the only variable is the money rate; the market value of common equity in a stationary (non-expanding) company depends upon the money rate and the earning rate; the market value of an investment in expanding corporate equities, finally, depends not only upon these two factors, but upon the rate and period of expansion as well.

The next generalization which had to be assumed in the discussion is "good management" or the expectation that the company will neither retain sterile capital, nor overlook opportunities for expansion. As an illustration, let us examine (24). If the company had issued subscription rights only at the rate

$x - r$ instead of at the correct rate $x - r + c$, the fair market value of the stock would have dropped from (14) to

$$P = e^{(x-c-i)k}\left(\frac{r - x + c}{x - c - i} + \frac{r}{i}\right) - \frac{r - x + c}{x - c - i} \tag{25}$$

causing a corresponding reduction in the yield from (24) to

$$\epsilon = x - c + \frac{c}{P} - \frac{x - r}{P} \tag{26}$$

The concept of "good management" has a further implication when the total capitalization of the company consists not only of common stock, but of senior securities as well. In such cases the earning and expansion rates of the common stock are no longer independent variables reflecting business conditions alone, but are subject to change, whenever the proportionate volume of senior capital is changed. The problems of financing through senior securities have not been injected into the deductions concerning the yield of common stocks, because they are worthy of separate consideration. Without entering into details beyond the scope of this study, it may be said that established corporations usually maintain an approximately constant ratio between the common equity and the senior capital outstanding. As long as this ratio remains constant, the changes in the earning and expansion rates of common stock will be linearly correlated to the earning and expansion rates of the entire corporate capital and will therefore not disturb the conclusions reached.

§ 74. Algebraic derivation of formulæ for fair value and yield.

Formula (14) can be obtained algebraically by adding together the three constituent elements of the fair value, *viz.*:

A. The present value of the principal sum invested in the company which is to be returned on the unknown date of liquidation.

B. The present value of all dividend payments made during the period of expansion. To avoid an accumulation of sterile capital, all earnings in excess of the expansion rate are distributed.

C. The present value of all dividend payments after the end of the expansion period. The entire earnings are distributed during this period.

Let

r = earning rate

x = expansion rate

i = money rate

n = number of years during which the earning rate will be maintained.

k = number of years during which the expansion rate will be maintained.

P = market value of each dollar of book equity.

$(1 + x)^k$ = compound amount of one dollar of present book equity increasing at the expansion rate for k years.

$(1 + i)^n$ = compound amount of one dollar increasing at the money rate for n years.

$\frac{(1 + x)^k}{(1 + i)^n}$ = present value of one dollar of book equity compounded for k years at the expansion rate and remaining constant thereafter to become payable at the end of n years from now. (Item A.)

$r - x$ = excess of earning rate over expansion rate (annual cash dividends per \$1 book equity during the expansion period).

$(r - x)\frac{1 - \left(\frac{1 + x}{1 + i}\right)^k}{i - x}$ = present value of an annuity of k payments consisting of a first payment of $r - x$ and subsequent payments growing at the rate x. (Item B.)

$r(1 + x)^k$ = the amount which a book equity of $(1 + x)^k$ will earn in the year $k + 1$ and subsequent years.

$r\left(\frac{1+x}{1+i}\right)^k \frac{1 - \frac{1}{(1+i)^{n-k}}}{i}$ = present value of a deferred annuity of $n - k$ payments of $r(1 + x)^k$ each; the first payment to be made at the end of $k + 1$ years from now. (Item C.)

Adding items A, B and C together, the following formula is obtained:

$$(27)\quad P = \underbrace{\frac{(1+x)^k}{(1+i)^n}}_{A} + \underbrace{(r-x)\frac{1-\left(\frac{1+x}{1+i}\right)^k}{i-x}}_{B} + \underbrace{r\left(\frac{1+x}{1+i}\right)^k \frac{1-\frac{1}{(1+i)^{n-k}}}{i}}_{C}$$

Placing $n = \infty$ and reducing, we obtain

$$(28)\quad P = \left(\frac{1+x}{1+i}\right)^k \left(\frac{r-x}{x-i} + \frac{r}{i}\right) - \frac{r-x}{x-i}$$

The only difference between formulæ (14) and (16) on one hand and (27) and (28) on the other is that the symbols r, x and i represent annual rates in the latter two and forces of rates (*i.e.* rates adapted for instantaneous compounding) in the former two.

The counterparts of formulæ (17) and (18), derived algebraically, will read as follows:

$$(29)\quad n = \frac{\log\left[1 + (P-1)\frac{x-i}{r-i}\right]}{\log(1+x) - \log(1+i)}$$

$$(30)\quad k = \frac{\log\frac{i}{x} + \log\left[1 + (P-1)\frac{x-i}{r-i}\right]}{\log(1+x) - \log(1+i)}$$

The formula of the yield is derived, as in § 73, by adding together the increase in trend value and the income distributed:

$$(31)\quad \epsilon = \frac{P(1+x) - P + (r-x)}{P} = x + \frac{r-x}{P}$$

The formula quoted in italics in § 38 is a variation obtained by segregating the total market value into a book value B and a market premium M.

$$P = \frac{B+M}{B}$$

$$(32)\quad \epsilon = \frac{Br + Mx}{B+M}$$

§ 75. Computation of earning and expansion rates from book-value curve.

The company whose stock is charted in Fig. 3 has distributed stock dividends at the rate of 2.5% a quarter during the nine years ended December 31, 1932. For the year 1933 the rate of distribution was 2% quarterly. A single share held on January 1, 1924, has been split into $(1.025)^{36} \times (1.02)^4 = 2.6322$ shares. In addition, the book value of a share has risen from $16.50 to $24.40. The average annual expansion rate for the ten years can accordingly be computed from the equation:

$$(1 + x)^{10} = \frac{2.6322 \times 24.40}{16.50}$$

Solving with the aid of logarithms, the answer is

$$x = 14.56\% \text{ approx.}$$

Since the company has distributed no cash dividends, the earning rate must have been the same.

$$r = 14.56\% \text{ approx.}$$

The computation of the earning and expansion rates for Fig. 2 is slightly more complicated. The rights issued were as follows:

June 9, 1924	1 : 5 @ $100
June 7, 1926	1 : 6 @ $100
May 31, 1928	1 : 6 @ $100
May 9, 1929	1 : 6 @ $100
May 23, 1930	1 : 6 @ $100

A single share having a book value of $115 on January 1, 1924, has been split into $6/5 \times (7/6)^4 = 2.2232$ shares, each of which had a book value of $129 on December 31, 1933. The average expansion rate for the ten-year period is therefore obtained from the relation

$$(1 + x)^{10} = \frac{2.2232 \times 129}{115}$$

$$x = 9.57\% \text{ approx.}$$

To find the earning rate, the cash dividends diminished by subscriptions must be taken into consideration. The dividends on an original share amounted to:

1×2.25	\$ 2.25
$8 \times 2.25 \times 6/5$	21.60
$8 \times 2.25 \times 6/5 \times 7/6$	25.20
$4 \times 2.25 \times 6/5 \times (7/6)^2$	14.70
$4 \times 2.25 \times 6/5 \times (7/6)^3$	17.15
$15 \times 2.25 \times 6/5 \times (7/6)^4$	75.04
	\$155.94

Less subscriptions:

1×20	\$20.00
$1 \times 16\frac{2}{3} \times 6/5$	20.00
$1 \times 16\frac{2}{3} \times 6/5 \times 7/6$	23.33
$1 \times 16\frac{2}{3} \times 6/5 \times (7/6)^2$	27.22
$1 \times 16\frac{2}{3} \times 6/5 \times (7/6)^3$	31.76
	\$122.31
Excess of dividends over subscriptions	\$33.63

If dividends had equalled subscriptions, instead of exceeding them by \$33.63, the price of 2.2232 shares on December 31, 1933, would have been $2.2232 \times 129 + 33.63 = \$320.41$. The earning rate is therefore given by the formula

$$r\frac{(1+x)^{10}-1}{x} = \frac{320.41}{115} - 1$$

$$r = 11.44\% \text{ approx.}$$

The foregoing computation of the earning and expansion rates from Fig. 2 is inaccurate for two reasons:

1. The fact that subscription rights have not been exercised in full has been disregarded.
2. Compound interest on dividends and subscriptions has been omitted.

The correct method of computing expansion may be indicated briefly by reference to the first subscription right. If that right had been exercised in full, the book value of a share immediately after subscription would have been:

$$\frac{5 \times 118 + 100}{6} = \frac{690}{6} = \$115$$

If, on the other hand, 5% of all rights issued have lapsed, the computation is:

$$\frac{5 \times 118 + 95}{5.95} = \frac{685}{5.95} = \$115.126$$

Although the company as a whole has expanded only at the rate of 5.95/5, the investor who subscribed his entire allotment has expanded his book equity at the rate

$$\frac{6}{5} \times \frac{115.126}{115}$$

upon expiration of the first right and in a similar manner for all subsequent rights.

No space need be given here to the method of calculating compound interest.

§ 76. Computation of earning and expansion rates from trend curve.

It has been pointed out in § 40 that the book-value curve does not reflect all factors determining the fair value and yield of a share. In Fig. 2 overconservative accounting procedure was introduced purposely by taking the book values from the balance-sheet of the holding company instead of from the consolidated balance-sheet of the entire affiliated system. Furthermore, large reserves for contingencies were classified as liabilities instead of as earned surplus.

Earning and expansion rates may be calculated from trend values in exactly the same manner as from book values by substituting the former for the latter in § 75. Strictly speaking, the trend curves in Figs. 2 and 3 should have been drawn in such a manner as to show tooth-like indentions similar to, but larger than, those of the book-value curve. This detail has been omitted because the exact position of the trend line is always somewhat uncertain.

If trend values are substituted for book values, the earning and expansion rates are:

$x = r = 16.1\%$ approx. for Fig. 3

and

$$\left.\begin{aligned} x &= 11.67\% \\ r &= 13.18\% \end{aligned}\right\} \text{ approx.} \qquad \text{for Fig. 2.}$$

These results again neglect the effect of incompletely exercised subscription rights and compound interest, as far as Fig. 2 is concerned.

§ 77. **Computation of yield.**

According to § 73, formula (21), the yield is:

$$\epsilon = x + \frac{r - x}{P}$$

For Fig. 3, this reduces to:

$$\epsilon = x = r = 16.1\% \text{ approx.}$$

In the case of Fig. 2, the yield which can be expected on the basis of past performance is:

$$\epsilon = 11.67 + \frac{129 \times (13.18 - 11.67)}{175} = 12.79\% \text{ approx.}$$

§ 78. **Computation of horizon.**

Assuming that the money rate is 4% and that the horizons of the earning and expansion rates coincide, the distance of the common horizon from the present can be obtained by substituting the rates found in § 76 into formula (17), as adapted for annual rates.

Thus for Fig. 2 the answer is:

$$n = \frac{\log\left[1 + \left(\frac{175}{129} - 1\right)\frac{.1167 - .04}{.1318 - .04}\right]}{\log 1.1167 - \log 1.04} = 3.8 \text{ years approx.}$$

Similarly we get for Fig. 3:

$$n = \frac{\log 57.5 - \log 24.4}{\log 1.161 - \log 1.04} = 7.7 \text{ years approx.}$$

The results from (18) are negative in both instances, indicating that (14) gives excessive valuations. The answers obtained for n mean that the stocks under consideration have been appraised by estimating that their earning and expansion rates will gradually disappear in about 13 years for Fig. 2 and in about 26 years for Fig. 3.

§ 79. **Application of yield-theory to public utility regulation.**

The preceding sections throw an interesting side-light on the effectiveness of present-day public utility regulation, because both companies analyzed happen to be public utility holding com-

panies, whose subsidiaries are subject to regulation. Although it is dangerous to make passing references to such a highly controversial subject, it seems pertinent to test the theory advanced in this study by asking how it is possible that both stocks yield substantially more than the legal rate of return. Disregarding questions of asset valuation and various practices violating the spirit of existing regulations, the answer appears to be that regulation extends at present only to the earning rate, but not to the expansion rate.

By limiting the stockholder's participation in both the earning and the expanding power of a production-dollar ($1 of book equity) to the legal rate of return, the yield of the stock can be limited to the same rate. It is not possible, however, to guarantee this yield, because the market value of any investment tends to rise to the point where it can yield only the money rate. Only if the period of future expansion continues to be underestimated from year to year, can the stock yield more.

The machinery of regulation would involve the establishment of a consumers' surplus account, to be credited not only with earnings in excess of the legal rate, but also with the sales of subscription rights entitling to reinvestment in excess of the same rate.

A simplified example will make the proposal clear. Assume that a company earns 10% p.a. and expands at the rate of 15%, while the legal rate is 7%. Assume also that the market price of the stock discounts the first twenty years of earnings and expansion ($n = k = 6$).

An investor who owns stock representing 100 production-dollars at the beginning of the year will find himself the owner of 107 at the end. According to (16), special case (d), their fair market value at, say, 4% will be (on the basis of annual rates):

$$107P = 107 \left(\frac{1.07}{1.04} \right)^6 = \$126.91$$

The distribution of 7% in stock or $7 in cash, plus seven rights entitling to the subscription of $1 each, or any other equivalent combination will give him $8.30 market-dollars, or a yield of 7%, reducing the value of the original block to its initial value of $118.61.

The consumers' surplus, in turn, will be credited for every 100 production-dollars with $3 of excess earnings and with the

proceeds from the sale of eight additional rights, worth about 19¢ each. Appropriate regulation of service rates to consumers will keep the consumers' surplus within reasonable limits.

It should be noted that a consumers' surplus set up in this manner will represent sterile and not productive capital, because the entire new equity needed for expansion is obtained from old and new stockholders. There would accordingly be no obstacle to the liquidation of this consumers' surplus in any manner desired, whether through the regulation of service rates or consumers' dividends. Conversely, the balance on hand at the beginning of a period would not be entitled to operating profits pro-rata with stockholders, but merely to such income as could be obtained from investment in marketable securities.

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